RCRA Facility Investigation Phase 1 Report Dow Hanging Rock Plant, Ironton, Ohio

Prepared for

The Dow Chemical Company

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CH2MHILL

Executive Summary

This Resource Conservation and Recovery Act (RCRA) facility investigation (RFI) report describes the investigation activities associated with The Dow Chemical Company (Dow) Hanging Rock Facility in Ironton, Ohio (facility). The primary objective is to satisfy the U.S. Environmental Protective Agency (USEPA) requirement under Section II.F.2 RFI of the Part B permit "…to thoroughly evaluate the nature and extent of the release of hazardous waste(s) and hazardous constituent(s) from all applicable SWMUs and AOCs identified in Section II.C."

The Phase 1 RFI was conducted from December 2011 to January 2012, in accordance with the RFI Work Plan (CH2M HILL 2011), as approved by USEPA on November 18, 2011. The first phase of the RFI was designed to investigate soil and sediment at the facility. The second phase of the RFI will be designed to complete delineation of the nature and extent of contamination such that risk-based decisions can be made on the need for and scope of corrective measures.

In the first phase of investigation, soil and sediment samples were collected from the 1 area of concern (AOC) and 10 solid waste management units (SWMUs) requiring further investigation in order to identify whether a release had occurred, and if so, to identify the nature and extent of site-related constituents. A total of 40 soil borings were advanced and 6 sediment samples collected. In addition, seven monitoring wells were installed across the facility to provide an understanding of the facility hydrogeology, including subsurface stratigraphy and groundwater flow direction. At selected locations, borings were advanced to bedrock to determine the stratigraphy of the unconsolidated soils. The subsurface stratigraphy was generally consistent across the site with clay and silt overlying sand and gravel, and the bedrock encountered in the deep borings was shale.

Groundwater was encountered at approximately 20 feet below ground surface (bgs) and observed elevations indicate that groundwater is flowing in a southeastern direction, toward the river.

The data collected were screened against conservative industrial risk based human health and ecological screening values. Data were also compared to screening levels based on the soil screening levels that are protective of migration to groundwater in order to determine the need for and scope of the Phase 2 RFI. The results of these screenings showed:

- Arsenic was detected across the site at levels exceeding human health screening values. However, arsenic is not considered to be a constituent of concern for this facility and will not be the focus of future investigations for the following reasons:
  - Arsenic is not known to be a chemical used at the site
  - The concentrations observed were close to established background values
- Screening level human health risk assessment (SLHHRA) and screening-level ecological risk assessment (SLERA) evaluations determined that none of the site-related

constituents would be considered constituents of potential concern (COPCs) based on risk to human or ecological receptors.

- Soil or sediment containing constituents at concentrations exceeding the conservative soil screening level (SSL) values considered to be protective of groundwater were observed at SWMU 1, SWMU 15, SWMU 15, SWMU 17, SWMU 18, SWMU 24, SWMU 25-28, and AOC D. The data and site conditions will be further evaluated for these areas, and if appropriate, additional soil and/or groundwater investigation will be performed in the Phase 2 RFI. Data quality objectives for the Phase 2 RFI will be developed to determine whether the COPCs identified based on the SSLs are present in groundwater at concentrations which could pose an unacceptable risk to human or ecological receptors.

Therefore, based on the results of the investigation, no further investigation is proposed for the following remaining SWMUs: SWMU 11, SWMU 12, SWMU 19, and SWMU 29.

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Acronyms and Abbreviations

AOC	area of concern
AUF	Area Use Factor
BAF	bioaccumulation factor
BCF	bioconcentration factor
bgs	below ground surface
BTAG	Biological Technical Assistance Group
CEM	conceptual exposure model
COPC	constituent of potential concern
COPEC	contaminant of potential ecological concern
cPAH	carcinogenic polynuclear aromatic hydrocarbon
CSM	conceptual site model
DAF	dilution attenuation factor
Dow	The Dow Chemical Company
DPT	direct-push technology
DQO	data quality objective
Eco-SSL	ecological soil screening level
ELCR	excess lifetime cancer risk
EPC	exposure point concentration
ERA	ecological risk assessment
ESL	ecological screening level
facility	Hanging Rock Plant
gpm	gallons per minute
HCl	hydrochloric acid
HHRA	human health risk assessment
HI	hazard index
HQ	hazard quotient
IDW	investigation-derived waste

LOAEL	lowest observed adverse effect level
MCL	maximum contaminant level
mg/kg	milligrams per kilogram
NGVD	National Geodetic Vertical Datum
NOAEL	no observed adverse effect level
NPDES	National Pollutant Discharge Elimination System
NWI	National Wetlands Inventory
ODNR	Ohio Department of Natural Resources
Ohio EPA	Ohio Environmental Protection Agency
PAH	polynuclear aromatic hydrocarbon
PID	photoionization detector
PR/VSI	preliminary review/visual site inspection
RCRA	Resource Conservation and Recovery Act
RFI	Resource Conservation and Recovery Act facility investigation
RSL	regional screening level
SLERA	screening-level ecological risk assessment
SLHHRA	screening-level human health risk assessment
SVOC	semivolatile organic compound
SWI	Scioto Water Incorporated
SWMU	solid waste management unit
USEPA	United States Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
VOC	volatile organic compound
°F	degrees Fahrenheit

SECTION 1

Introduction

1.1 Introduction and Objectives

This Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) report is being submitted pursuant to Section II.F.2.c of the RCRA permit OHD 039 128 913 and describes the results of the Phase 1 RFI performed at The Dow Chemical Company (Dow) Hanging Rock Facility in Ironton, Ohio (facility) in December 2011 and January 2012. The investigation was conducted in accordance with the RFI Work Plan (CH2M HILL 2011), as approved by the U.S. Environmental Protection Agency (USEPA) on November 18, 2011.

The primary objective of the RFI is to "…thoroughly evaluate the nature and extent of the release of hazardous waste(s) and hazardous constituent(s) from all applicable SWMUs and AOCs identified in Section II.C.." as required under Section II.F.2 RFI of the permit. In order to meet the primary objective, two data quality objectives (DQOs) were identified:

- Determine if chemicals in soil and sediment exist at concentrations greater than background and risk-based screening levels protective of potential exposure pathways at each solid waste management unit (SWMU) and area of concern (AOC).
- Determine the facility-wide groundwater flow direction and shallow (to bedrock) subsurface stratigraphy.

To address these DQOs (which are described further in Section 3), soil and sediment samples were collected from the 10 SWMUs and 1 AOC indicated as requiring further investigation under Section II.C.2 of the Part B Permit. In addition, monitoring wells were installed across the facility to provide an understanding of the facility hydrogeology, including subsurface stratigraphy and groundwater flow direction. At three locations, deep borings were advanced to bedrock to determine the stratigraphy to bedrock. Subsequent phases of investigation will be based on information obtained in this first phase.

1.2 Regulatory Framework and Background

The facility submitted a RCRA Part A permit application in 1980 and was issued an Ohio Hazardous Waste Facility Installation and Operation Permit in 1981 (A.T. Kearney 1989). This permit was modified in 1986 to include a hazardous waste storage tank. In 1989, Dow applied for an RCRA permit modification to include an additional storage process using containers. A preliminary review/visual site inspection (PR/VSI) was conducted on behalf of USEPA in 1989 (A.T. Kearney 1989), and a follow-up investigation was completed in 2000 (Tetra Tech 2000).

In 2005, USEPA issued a RCRA permit for the facility. Subsequent negotiations between Dow and USEPA were resolved, and a revised permit was issued in August 2010. The investigation discussed in this report is in accordance with the requirements of the RCRA permit.

1.3 Overview

The work described in this report was completed in accordance with the work plan (CH2M HILL 2011), as approved by USEPA. Deviations from the work plan included collection of groundwater samples from two onsite water supply wells and offsetting proposed soil boring locations based on site conditions. These variations from the work plan are discussed within this report.

As described in the approved Phase 1 RFI Work Plan, soil samples were collected from the 1 AOC and 10 SWMUs requiring further investigation, as determined in the 2010 RCRA permit. Sediment samples were collected from two SWMUs that are onsite drainage ditches. In addition, wells were installed across the facility to provide an understanding of the facility hydrogeology, including subsurface stratigraphy and groundwater flow direction. At three selected locations, deep borings were advanced to bedrock to determine the stratigraphy to bedrock.

The soil and sediment data were evaluated and compared to human health risk screening levels and screening levels considered to be protective of groundwater to delineate nature and extent. In addition, a screening-level human health risk assessment (SLHHRA) and screening-level ecological risk assessment (SLERA) were completed using the data.

SECTION 2

Site Background

2.1 Physical Description of the Facility

The facility is located at 925 County Road 1A in Lawrence County, approximately 4 miles northwest of Ironton, Ohio (Figure 2-1). The facility is between the old and new State Route 52, and occupies only a small portion of the 750-acre parcel (Figure 2-2). The property owned by Dow is bordered on the north by wooded hills; on the west by farmland; on the south by the Ohio River; and on the east by farmland and residences. Big Thief Creek flows east to west through the southern portion of Dow's property and discharges into the Ohio River approximately 1,000 feet south of the property boundary.

2.2 Facility Operational and Waste Management History

2.2.1 Facility Operational History

Dow began operating at the facility in 1957 and currently employs approximately 100 people at the facility. Facility buildings are used for manufacturing operations, as well as warehouse and office space. Five production wells are located onsite; two are used for fire protection and supplemental process water, and the remaining wells are not currently used.

The facility manufactures and ships polymeric beads and foam, most of which are intermediate products used or combined with other materials offsite by other companies. Three plants currently operate at the facility: Styron plant, Styrofoam plant, and Ethafoam plant. The Styron plant, which began operation in 1968, is owned and operated by American Styrenics.

2.2.2 Facility Waste Management

Some of the wastes produced at the facility are characteristic hazardous waste; others contain only small quantities of hazardous constituents (Tetra Tech 2000). Most hazardous wastes historically were generated by the Styron plant as a result of cross-contamination of product and heat transfer fluids, process sampling, residuals from process upsets and cleaning, and condensate collection from the process bypass stream.

Most of the wastes generated in the three plants are characteristic hazardous wastes D001 and D018, including waste oils, DOWTHERM fluid, and methylene chloride waste (Tetra Tech 2000). D001 and D018 wastes reportedly are stored in 55-gallon drums at satellite accumulation areas onsite or transferred directly to the hazardous waste storage area.

Solid wastes generated include partially polymerized styrene, polystyrene, rubber, and acrylonitrile wastes; laboratory wastes; and solvent-contaminated materials such as boots, gloves, rags, and feed filters. The drums are stored at SWMU 5, which was not identified in the Permit as requiring investigation, and then transferred to the hazardous waste container loading area before being transported for disposal to Green Valley Landfill in Smithfield, Kentucky.

The liquid hazardous wastes consist of styrene, ethylbenzene, acrylonitrile, oil solutions, and solvent-contaminated lubricating oils. The drums are stored in the hazardous waste storage area for less than 90 days and are transferred to Safety-Kleen in Bridgeport, New Jersey, for incineration.

2.2.3 Facility Water Usage

Five water supply wells are located onsite. The facility reports that Well 5 is used as needed for the wastewater treatment plant, and Well 2 is used for fire protection. The remaining three wells are not used. Boring logs for the wells are presented in Appendix A.

2.3 Solid Waste Management Units and Areas of Concern

This section briefly presents descriptions of the SWMUs and AOCs identified in the RCRA permit as requiring additional information (*Final May 2006/Modified August 2010, OHD 039 128 913)*. Both the Tetra Tech preliminary assessment/VSI and the A.T. Kearney PR/VSI were used to summarize the SWMUs and AOCs listed below. Figure 1-2 shows the approximate location of each SWMU and AOC. The historical information was presented in the work plan (CH2M HILL 2011).

2.3.1 SWMU 1 – Former Flaring Pad

The former flaring pad was located in the area of the present maintenance building and is reported to have operated from 1957 through 1968. The flaring pad was a concrete pad smaller than the current maintenance building, with a tank used to burn waste using an aspiration system. Byproducts from the Styrofoam process containing styrene, partially polymerized polystyrene, and ethylbenzene were burned on the flaring pad. SWMU 1 was located southwest of Building 505. The pad was drained to the process sewer in that area of the site (Dow 2007). During the October 2010 site visit and the Phase 1 RFI field work, it was observed that the area where the former flaring pad was located had been converted to an asphalt-covered parking lot for Building 505.

2.3.2 SWMU 11 – Satellite Accumulation Area - Ethafoam Plant

SWMU 11 is a 10-foot-square roofed concrete container storage area. Valves, drums of raw material, and hazardous waste were stored for less than 90 days in this area. The containers and valves were stored on pallets. In 2007, the pad was inspected and found to be in "good condition" and any spills would be directed to the process sewer (Dow 2007). During the October 2010 site visit, the pad was inspected and found to be in overall good condition with minor cracks in the concrete to the northwest and northeast corners of the pad. During the December 2011 and January 2012 RFI field activities, soil borings were placed in areas where cracks were observed in the pad. The soil borings indicated that the cracks were only surficial and did not penetrate the entire thickness of the concrete pad. No other information was available for this area.

2.3.3 SWMU 12 – Former Methylene Chloride Cleaning Tank

The former methylene chloride cleaning tank was adjacent to the tank farm on Street A in the northwestern corner of the Styron plant. The tank was 10 feet high, 4 feet in diameter,

and was supported by railroad ties placed on a 10-foot-square concrete pad that had a 6-inch-high curb. The tank was surrounded by sand and covered by 1 inch of Styrofoam (Dow 2007). The tank was used for cleaning partially polymerized polystyrene from equipment used in the polystyrene process. Equipment would be bolted to the tank, and methylene chloride would be pumped through the equipment. The spent methylene chloride then would be pumped into a delivery truck for offsite disposal, and the excess methylene chloride was drummed and taken to the hazardous waste container storage area. The cleaning process took 5 to 7 days, and the methylene chloride was contained during the process. Use of the tank was discontinued in 1993, and the tank was removed and replaced in 1998 (Tetra Tech 2000). In December 2010, CH2M HILL inspected the area of the former methylene chloride cleaning tank. The concrete pad was found to be in good condition with a minor crack to the south of the pad. During the December 2011 and January 2012 RFI field activities, a soil boring was installed in the area where the crack was observed in the concrete.

2.3.4 SWMU 15 – Two Section Septic Tank System

This unit is south of the main office building under a grassy area in front of the building. The unit is 16 feet by 20 feet, constructed of concrete, and has a capacity of 2,600 gallons. The unit has been in operation since 1957 and has received septic wastewater and process wastewater from plant operations. Before 1976, water was discharged to the stormwater drainage system (SWMU 18). After 1976, water was discharged to the wastewater treatment system. During the December 2011 and January 2012 RFI field activities, Mike Ratliff (CH2M HILL Dow site contact) informed CH2M HILL that the septic tank was approximately 13 feet deep. Soil borings (S15-SS02 and S15-SS03 to the east and west, respectively, of the septic tank were installed to depths greater than 13 feet.

2.3.5 SWMU 17 – Stormwater Drainage System

This unit surrounds the Styron plant and is comprised of drainage ditches, sewer lines, and roof drains from the Styrofoam and Ethafoam plants. The system consists of 3-foot-deep natural clay gravel-lined ditches, grates, and concrete sewer lines, and it is approximately 1,554 feet long. The system discharges into the surface drainage ditch to Big Thief Creek (SWMU 18). The drainage ditches have been present since 1957. Stormwater runoff from the Styron, Styrofoam, and Ethafoam plants and the tank farm flows through this drainage system. During the October 2010 site visit, CH2M HILL observed that the section of SWMU 17 at the corner of Fifth Street and A Street had a pool of water. During the December 2011 and January 2012 RFI field activities it was observed that the section of SWMU 17 that holds water only did so for between 2 and 3 days following a rain event.

2.3.6 SWMU 18 – Drainage Ditch to Big Thief Creek

This unit is a grass and gravel-lined surface water drainage ditch that received surface water runoff from the stormwater drainage system and fire pond from 1957 to 1992. It ranges from 3 to 5 feet deep and is approximately 5,400 feet long. The ditch drains by gravity to Big Thief Creek. The ditch currently receives treated water from the wastewater treatment system and discharges to Big Thief Creek under National Pollutant Discharge Elimination System (NPDES) permit OH0099309.

Facility records indicate that two spills occurred to this SWMU. In 1988, a styrene spill occurred in the drainage ditch in the vicinity of the styrene storage tanks. Another spill occurred when process wastewater flowing into the aerated skimmer basin exceeded the pumping capacity to the treatment plant, and the untreated process water discharged directly to the surface drainage ditch to Big Thief Creek. The PR/VSI reported that analysis of the drainage ditch sediments and outfall waters indicated the presence of small but measurable amounts of 1,1,1-trichloroethane (1,1,1-TCA); benzene; ethylbenzene; 1,3- and 1,4-dimethylbenzene; styrene; isopropylbenzene; toluene; and xylenes (A.T. Kearney 1989). The ditch holds water throughout most of the year, especially during periods of high precipitation..

2.3.7 SWMU 19 – Drainage Ditch to North

This unit is a slight depression leading from the northern part of the Styron plant to a ditch that runs along the railroad adjacent to State Route 52. The ditch receives stormwater runoff from the northernmost part of the Styron plant and discharges offsite to the north of the facility. During the December 2011 and January 2012 RFI field activities, it was observed that the lower points (northern and southern ends) of SWMU 19 held water when it rained. The standing water took between 2 and 3 days to infiltrate into the ground. Soil borings completed in the SWMU were installed through the area that held water after rainfall.

2.3.8 SWMU 24 – Process Sewer Line

The unit was constructed of preformed cement pipes packed with oakum caulking. The system receives discharges from most onsite sumps, including forklift wash water, cooling tower and boiler blowdown. Water from SWMU 24 discharges to the onsite wastewater treatment plant. In 1996, a 150-foot length of the sewer line located in the southwest portion of the unit was voluntarily investigated, excavated, and removed as part of the closure plan for the former drum storage area (SWMU 4, located on the ground surface above this portion of SWMU 24). The closure plan for this SWMU was approved by Ohio EPA on September 30, 1996 (Radian 1997), and although this SWMU was closed, it was not included in the final RCRA permit (Radian 1997). Post-excavation sampling demonstrated compliance with industrial and residential soil cleanup standards based on soil saturation values and developed in accordance with *Closure Plan Review Guidance for RCRA Facilities* (Ohio Environmental Protection Agency [Ohio EPA] 1993). Post-excavation data showed concentrations of ethylbenzene that ranged from not detected to 39 milligrams per kilogram (mg/kg) and styrene from not detected to 110 mg/kg (Radian 1997).

In 1996, the portion of the line associated with the closed drum storage area was restored and backfilled with clean soil. A new collection sump was installed, and a portion of the process sewer line was replaced (Radian 1997). The remainder of the sewer line has not been investigated.

2.3.9 SWMU 25-28 – Former Wastewater Treatment System

The former wastewater treatment system consisted of an aerator, clarifier, chlorinator, and two tertiary sand filters. The system was installed in 1976 and was constructed of concrete and built into the ground. Process wastewater from the aerator skimmer basin and sanitary wastewater from the septic tank (SWMU 15) flowed into the 15,000-gallon packaged wastewater treatment plant, consisting of an aerator and clarifier (Dow 2007). The clarified

water was routed to one of two sand filters, sent to the chlorinator, and discharged to the fire pond (SWMU 31, which was closed and not included in the final RCRA permit). The system treated approximately 11,000 gallons of water per day. The units were removed in 1992. During the December 2011 and January 2012 RFI field activities, CH2M HILL used as-built drawings (provided by Dow) and ground penetration radar to locate the footprint of the former Wastewater Treatment System (SWMU 25-28). Soil borings completed in the SWMU were installed within the identified footprint of the SWMU.

2.3.10 SWMU 29 – Former Used Filter Sand Pile

A pile of used filter sand was temporarily located on the ground just a few feet west of the tertiary sand filters pending transport to a landfill. The PR/VSI reported that this activity was not a common practice (A.T. Kearney 1989). The sand had been used to polish wastewater after treatment in the aerated skimmer and the treatment plant (Dow 2007). SWMU 29 became inactive when the wastewater treatment system was replaced in 1992. The general area has been excavated and regraded since the sand was removed. No other information is available for this unit.

2.3.11 AOC D – Underground Catalyst Storage Tank

A former 10,000-gallon steel raw material storage tank housed in an underground concrete vault in the Styron plant was used to store the catalyst 1,1-Di(tert-butylperoxy)cyclohexane, an organic peroxide. This peroxide is typically found as a percent solution in mineral oil and ethylbenzene (Dow 2007). The tank was taken out of service in December 1999 (Tetra Tech 2000). There are no known releases from this AOC. During the October 2010 site visit, CH2M HILL observed that the tank was still in the vault with water that appeared to be rain water inside the vault. During the Phase I RFI field activities, it was observed that the tank had been removed and the vault had been filled with "clean" sand.

2.4 Surrounding Land Use and Area Water Supply

As shown on Figure 2-3, land use in the vicinity of the facility is predominantly agricultural and the land cover is primarily forest. The Dow-owned property, including land leased by others, is bordered to the north by State Route 52, to the south by the Ohio River, and to the east and west by farmland.

Scioto Water Incorporated (SWI) supplies drinking water to most of the residents within the vicinity of the facility. This water is purchased from the City of Portsmouth, Ohio. In a January 27, 2011, telephone conversation, City of Portsmouth personnel said that the Dow facility also purchased potable water from the City. The water supplied to the facility as well as water sold to SWI is from the City's filtration plant located on the Ohio River near New Boston, Ohio, approximately 15 miles upstream of the facility.

To determine whether there were any wells within 1 mile of the facility, the Ohio Department of Natural Resources (ODNR) website was reviewed. According to ODNR data, 10 privately-owned wells are located within 1 mile of the facility. Appendix B contains a list of the wells, an ODNR map showing the locations of the wells, and boring logs for the wells. Three of the wells listed with ODNR are located on the Dow facility and water from the wells is used for the facility fire protection system at the site. Three of the well listed with ODNR are located downgradient (southeast) of the facility, the remaining five wells

are either located upgradient or sidegradient of the facility. Information about use of water from wells located offsite of the facility was not available on the ODNR websites.

The Ohio Source Water Assessment and Protection Program, which also includes the Wellhead Protection Program, was established to protect sources of public water supplies, including streams and aquifers, from contamination. This program designates areas that supply public water supplies. The facility area does not fall within a designated protected area.

2.5 Summary of Previous Investigations and Remedial Activities

In 1988, a styrene monomer spill occurred in the diked pump area near the styrene storage tanks. As part of the cleanup, impacted soil was excavated and disposed of. Post-excavation sampling was not completed as part of the cleanup. The facility also monitored Outfall 011 in Big Thief Creek for styrene, and none was detected.

In 1989, A.T. Kearney and DPRA Inc. conducted the initial PR/VSI at the facility for EPA. The PR/VSI was to identify potential for release of hazardous waste or constituents from the SWMUs and AOCs at the facility and to make recommendations where necessary. The PR/VSI report recommended follow-up activities in SWMUs and AOCs where either the potential existed for release of hazardous material, or where there were documented releases and no documentation of proper cleanup of the releases (A.T. Kearney 1989).

As part of USEPA Region 5 Environmental Priorities Initiatives, Tetra Tech conducted a PR/VSI of the facility in 2000 to characterize the facility's actual and potential release of hazardous material from onsite SWMUs and AOCs (Tetra Tech, 2000).

SWMU 4, the former drum storage area was closed in 1997. Due to elevated concentrations of volatile organic compounds (VOCs) detected in the soil during closure activities, a portion of SWMU 24 that runs beneath SWMU 4 was also investigated. As a result of this investigation, a 150-foot length of the sewer line located in the southwest portion of the unit was voluntarily investigated, excavated, and removed (Radian 1997). In 1996, the portion of the line associated with the closed drum storage area was restored and backfilled with clean soil. A new collection sump was installed, and a portion of the process sewer line was replaced (Radian 1997). The remainder of the sewer line has not been investigated.

SECTION 3

Phase 1 Field Investigation Summary

The Phase 1 RFI field activities took place in December 2011 and January 2012. The investigation consisted of utility locating, surface and subsurface soil sampling, sediment sampling, advancing deep soil borings, and monitoring well installation. These activities are discussed in the following sections. The work was completed in accordance with the USEPA-approved RFI work plan (CH2M HILL 2011); any deviations from the work plan are noted in the sections below.

3.1 Utility Location

Utility locating activities were conducted before starting the field activities. The utility location was performed by a private utility locator, using electromagnetic induction and ground penetrating radar instruments; information provided by Dow; and markings by public utilities companies to clear proposed soil boring and monitoring well locations.

Some of the proposed investigation locations were offset either because the proposed location was too close to identified utilities or because the location was not accessible to the drill rig. The proposed offset locations were presented to USEPA in a letter dated November 30, 2011. The USEPA approved the revised locations in an email dated December 2, 2011. The letter and attachments are provided in Appendix C.

3.2 Soil Sampling

Surface and subsurface soil samples were collected at nine SWMUs and one AOC at the facility. Soil samples were collected from one location in SWMU 15 (S15-SS04) and one location in SWMU 19 (S19-SS02) using a hand auger. Soil samples from all other locations were collected using a direct-push technology (DPT) drill rig. The soil cores were logged in the field and screened for organic vapors using a photo-ionization detector (PID). The boring logs are presented in Appendix A.

Soil samples were collected from the following depth intervals:

- 0 to 2 feet bgs (VOC samples were taken from 0.5 to 2 feet bgs due to potential for volatilization from exposure to the atmosphere)
- 3 to 5 feet bgs
- 8 to 10 feet bgs
- Any other interval that exhibited an elevated PID reading or had signs of potential impact

The soil samples were submitted for laboratory analysis as described below:

- VOCs by SW8260B

- Semivolatile organic compounds (SVOCs) by SW8270C/SW8270C selective ion monitoring
- Metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium and silver) by SW6010B/SW6020

3.3 Sediment Sampling

Surface sediment samples (0 to 6 inches below sediment surface) were collected from the ditches in SWMU 17 and 18 using disposable scoop samplers. Sediment samples were collected from:

- SWMU 17 – one location (S17-SD01)
- SWMU 18 – five locations (S18-SD01 through S18-SD05)

Sediment sampling locations were targeted in locations identified as soft sediment and in areas representative of the stream (ditch) reach. Collection followed procedures outlined in the work plan (CH2M HILL 2011) and the samples were analyzed for VOCs, SVOCs and metals.

3.4 Deep Soil Borings

At three locations co-located with monitoring wells, soil borings were advanced from surface to bedrock to characterize site stratigraphy (Figure 2-1). The borings were advanced to bedrock using sonic drilling methods and were continuously logged and screened for organic vapors with a PID. The soil boring logs for these deep borings are included in Appendix A. The deep borings were sealed with hydrated bentonite chips from top of bedrock to the depths where the monitoring well screens were installed.

3.5 Monitoring Well Installation

Seven monitoring wells (including the three monitoring wells from the deep soil boring section above) were installed across the facility. The monitoring wells were installed to evaluate groundwater flow in the water-bearing unit beneath the facility. The borings were advanced using sonic drilling methods and were continuously logged and screened with a PID. The soil boring logs and monitoring well completion diagram for the monitoring wells are included in Appendix A. The monitoring wells were screened in the upper part of the water-bearing zone identified at the site. After installation, the monitoring wells were developed and gauged. The surveyed top of casing elevations and water levels for the monitoring wells are listed in Table 3-1.

3.6 Groundwater Sampling

During the field investigation, the facility staff directed the drillers to an onsite water source for filling water tanks to be used for drilling. An odor was noted while filling the water tanks. The water was not used and the water tanks were decontaminated. Further discussions with the facility staff determined that this water supply came from a storage tank that was filled from Water Well 5 and Water Well 2. Grab samples were collected from these two wells and from the spigot from which the drillers obtained the water. A sampling

port was opened at each well head and water was purged for 10 minutes. The water was allowed to run from the spigot for 10 minutes. After purging, water quality readings were taken using a YSI multi-parameter meter, and groundwater samples were collected and analyzed for VOCs.

3.7 Surveying

An Ohio-certified surveyor surveyed the monitoring well locations after installation. The locations were tied to the same elevation datum (National Geodetic Vertical Datum [NGVD] 1988) as the topographic maps of the area. The borings were surveyed horizontally to the nearest 0.1 foot and vertically to the nearest 0.1 foot. The top of well casing and ground elevations at each well were surveyed horizontally to the nearest 0.01 foot and vertically to the nearest 0.01 foot. Well coordinates were recorded in Ohio State Plane coordinates.

3.8 Investigation-Derived Waste Management

Investigation-derived waste (IDW), including solids, soil, and water, was contained in 55-gallon drums and stored onsite. Composite samples were collected from soil and water IDW and were analyzed. The analytical results were below regulatory levels and indicated that no characteristic hazardous waste (D codes) codes would apply to this waste. Based on historical communications with Dow, listed hazardous waste codes have been ruled out for all SWMUs and AOC D. Appendix D contains the laboratory data with the results of the analysis.

SECTION 4

Physical Site Setting

This section contains a discussion of regional geology, local hydrogeology, hydrology, and ecological setting at the facility.

4.1 Geology

The facility is in the Ironton Plateau physiographic region of the Allegheny Plateau province. The Ironton Plateau is characterized by moderately high relief (300 feet) dissected plateaus. Coarse-grained, coal-bearing rock sequences are more common in this region than other regions of the Allegheny Plateau province. The geology of the Ironton plateau region consists of Pennsylvanian age sedimentary units of the Allegheny Formation and the Pleistocene age Minford Clay, silt-loam and sand and gravel (ODNR 2006).

Information on the subsurface geology at the facility was obtained from the soil borings and monitoring wells that were installed during the Phase 1investigation as well as boring logs obtained from ODNR dating to 1955. The facility is underlain primarily by a combination of unconsolidated and bedrock geologic material. The unconsolidated material includes surficial fill material (concrete, clay, sand and gravel), clay, sand, and gravel, and the bedrock consists of shale. A cross-section was created using information from the Phase 1 investigation (Figures 4-1, 4-2).

Surficial fill, including silt, clay, asphalt, concrete and sand, was noted in many borings across the site and was encountered from the surface to 0.5 to 2 feet. In general, clay was encountered in the wells from near surface to depths around 10 feet bgs. The clay unit appears to be thicker in the center of the facility. Underlying the clay layer is silt and then a coarse-grained sand and gravel unit that generally extends to the top of bedrock.

Soils in the vicinity of the facility are of the Elkinsville, Weibachsville, and Sciotoville silt loam group (United States Department of Agriculture, Natural Resources Conservation Service 2011). These soils are characterized as gently sloping, moderately well drained, with low to moderate permeability.

4.1.1 Bedrock

The ODNR well logs describe bedrock as occurring between 75 and 80 feet bgs and the deep borings advanced during the Phase 1 investigation encountered bedrock at between 79 and 83 feet bgs. Bedrock encountered in the three deep borings was shale. One of the well logs (ODNR Well ID 233182) located north of the facility described the bedrock as sandstone. It is likely that both the shale and sandstone are members of the Pennsylvanian age Allegheny Formation.

4.1.2 Unconsolidated Soils

The unconsolidated soil described on the ODNR logs and observed during the Phase 1 investigation includes 0.5 to 2 feet of surficial fill material, underlain by up to 10 feet of a fine-grained low permeability (clay, silt, clayey silt and silty clay) layer underlain by up to

70 feet of coarse-grained sand and gravel. The fine-grained low permeability layer is believed to be Ohio River floodplain deposits. The sand and gravel layer beneath the clay is likely alluvial deposits deposited by the Ohio River and colluvium formed when loose material rolled from the top of the moderate grade slope of the Ironton Plateau and built up at the bottom of a low-grade slope.

4.1.3 Local Hydrogeology – Unconsolidated Deposits

Water levels were measured in January 2012 in the seven monitoring wells installed during the Phase1 investigation. Based on these measurements, the shallow groundwater flows from northwest to southeast (Figure 4-3).

The facility lies in an area that has been described to contain permeable deposits of sand and gravel beneath the floodplain adjacent to the Ohio River (Schmidt 1995). The sand and gravel deposits in this area are capable of yielding between 100 and 500 gallons per minute (gpm). Pumping test data obtained from well logs for water wells installed at the facility indicate that the wells were pumped at between 150 and 350 gpm for 24 to 48 hours, and a drawdown of between 8 and 9 feet was recorded. One of the wells closer to the Ohio River was pumped at 217 gpm for 74 hours, and drawdown of 25 feet was recorded. Groundwater Resources of Lawrence and Gallia counties (Schmidt 1995) described bedrock under the facility as alternating layers of shale and thin sandstone capable of yielding less than 2 gpm at depth of less than 125 feet.

4.2 Hydrology

Regional surface water generally drains south toward the Ohio River. Ditches control most of the surface water drainage at the facility, and one drainage ditch in the northwest portion of the facility drains to the north. Figure 4-4 shows the site topography. SWMU 18, which receives treated water from the wastewater treatment system, flows into Big Thief Creek, which discharges to the Ohio River. The section of the Ohio River near the facility flows from east to west.

4.3 Meteorology and Climate

Ironton, Ohio, is approximately 13 miles northwest of Huntington, West Virginia. Precipitation in the Huntington/Ironton area averages approximately 41 inches annually. Records for this area indicate that March through August are the wettest months (greater than 3.5 inches per month) while October, November, and February are the driest (less than 3 inches per month). The average annual snowfall for the area is 25.9 inches. The average daily temperature is 55.2 degrees Fahrenheit (°F). The coldest month is January when the average daily temperature is 32.8 °F. The hottest month is July when the average daily temperature is 75.4 °F. Winds typically are from the south to south-southeast at an average speed of 6.5 miles per hour.

4.4 Ecological Setting

The identified terrestrial and aquatic habitats were based on observations made by a CH2M HILL ecologist during a November 2010 site walk and during sediment sampling

conducted in January 2012. A complete ecological survey (i.e., bird survey, plant, and/or animal survey) was not conducted as part of this site walk.

4.4.1 Potential Terrestrial Habitats

Terrestrial habitats on the active portion of the facility are limited to open grasslands. Small scrub/shrub and woody habitats were found around the perimeter of the facility as well as to the south. The dominant large woody species within the terrestrial habitats included oak, sycamore, maple, and pine. Smaller scrub/shrub species observed included multi-flora rose, honeysuckle, poison ivy, and various shrubs. Several species of birds were noted during the site walk and included the American robin, dove, blue jay, and crow. Other birds were observed, but could not be identified. The only mammals observed during the site walk were squirrels; however, the grassy, scrub/shrub, and woody habitats could support other smaller mammalian species, such as rabbits, voles, shrews, woodchucks, and mice. Given the small riparian buffer, it is unlikely that larger mammals would use these habitats as a significant source of food and/or shelter.

4.4.2 Potential Aquatic Habitats

The only potential onsite aquatic habitats identified during the site walk were the man-made ditches identified in SWMU 17 and SWMU 18. SWMU 17 receives stormwater runoff from the facility and drains east to the SWMU 18 drainage ditch. SWMU 18 receives surface water runoff from the stormwater drainage system and fire pond which drained by gravity to Big Thief Creek to the south. The drainage ditch to the north (SWMU 19) is a relatively small grass-lined ditch approximately 3 feet wide. At the time of the site walk in November 2011, only approximately 6 inches of water was present in the ditch, whereas in January 2012 SWMU 19 was dry. Given that water is present in an intermittent nature (during storm events), SWMU 19 is not considered a potential aquatic habitat. The drainage ditch to Big Thief Creek ranges from 4 to 10 feet wide; the widest portions were found at the southern extent of the ditch. Portions of this ditch are gravel-lined, and water depths ranged from approximately 6 to 24 inches during the site walk. Fish were not observed in either ditch during the site walk, and it is unlikely that either ditch could support a viable fish community. Furthermore, given the channelized nature of the ditches and the lack of a riparian buffer, these drainage ditches are not likely to provide a significant food source for upper trophic aquatic receptors (i.e., birds and mammals).

Offsite aquatic features include Big Thief Creek and the Ohio River. As previously noted, SWMUs 17 and 18 discharge to Big Thief Creek, which in turn discharges to the Ohio River. In addition, during a desktop survey of the National Wetlands Inventory (NWI) database, several small wetlands were identified within the vicinity of the facility (Appendix E). The closest wetlands were approximately 100 feet from the facility boundary, adjacent to the southern extent of the drainage ditch to Big Thief Creek and along Big Thief Creek. These wetlands were identified by NWI as freshwater emergent and/or freshwater forested/shrub wetlands. Although no vegetation indicative of wetlands has been observed on the facility, no formal wetland delineation was conducted during the site walk to confirm the presence of wetlands.

4.4.3 Special Habitats

No existing or proposed state nature preserves are at, or in the vicinity of, the facility, and no known unique ecological sites, geologic features, breeding or non-breeding animal concentrations, champion trees, state parks, state forests, scenic rivers, or wildlife areas are within the project area. The U.S. Fish and Wildlife Service (USFWS) maintains records and databases of rare and endangered species for the state. USFWS lists the Indiana bat (*Myotis sodalist)*, running buffalo clover (*Trifolium stoloniferum),* fanshell mussel (*Cyprogenia stegaria),* and pink mucket pearly mussel (*Lamsilis abupta*) as endangered species, and sheepnose mussel (*Plethobasus cyphyus*) and snuffbox mussel (*Epioblasma triquetra)* as proposed endangered species in Lawrence County. These species were not observed onsite during the site walk in November 2010 or during sampling conducted in January 2012, and given the limited habitats present, it is unlikely that these species would be present onsite.

SECTION 5

Nature and Extent of Contamination

This section presents the results of the soil, sediment and groundwater sampling, and compares the analytical results to screening levels protective of human and ecological receptors and migration to groundwater. The human health screening levels are based on USEPA Regional Screening Levels (RSLs) for chemical constituents in soil (USEPA 2011). Section 6.3.1 presents a detailed discussion of the soil RSLs. The ecological screening levels are based on USEPA ecological soil screening levels (Eco-SSLs), and/or USEPA Region 5 RCRA ecological screening levels for soil and sediment (USEPA 2003) and a detailed description is presented in Section 7.3.1. Per the work plan, soil and sediment results were compared to ecological screening levels for SWMU 17, SWMU 18 (sediment only), SWMU 19, and SWMU 29 only.

The screening levels protective of migration to groundwater are based on the soil screening levels (SSLs) presented in the RSLs table (USEPA 2011). The protection of groundwater SSLs are back-calculated from acceptable groundwater concentrations (i.e., maximum contaminant levels [MCLs] or risk-based tap water RSLs) to determine soil concentrations that have the potential to contaminate groundwater. The MCL-based SSLs were used for screening. In instances when there was not an available MCL-based SSL, the risk-based SSL was used, if available. In both cases, the SSL includes a dilution attenuation factor (DAF) of 20 to account for dilution of the constituent concentration from soil pore water to groundwater. According to USEPA's *Soil Screening Guidance: User's Guide* (USEPA 1996), a default DAF of 20 is considered protective for sources areas up to 0.5 acre in size. Since the SWMUs and AOCs (except possibly SWMU 24) are less than 0.5 acre in size, the DAF of 20 is considered protective for this evaluation.

The SSL methodology was designed for use during the early stages of a site evaluation when information about subsurface conditions may be limited. Because of this constraint, the methodology is based on conservative, simplifying assumptions about the release and transport of contaminants in the subsurface. Therefore, exceeding a groundwater protective SSL only indicates that further evaluation may be warranted and does not necessarily indicate that groundwater contamination is present.

Boring logs for the soil borings and monitoring wells are presented in Appendix B. The analytical laboratory reports are presented in Appendix D. The CH2M HILL project chemist performed data evaluation and verification, and the data quality evaluation is presented in Appendix E.

5.1 Soil Results

The following sections summarize the soil sampling and analytical results for each of the SWMUs and AOCs investigated.

5.1.1 Site-wide Arsenic in Soils

Arsenic was detected across the site in every boring and depth interval at concentrations greater than the human health screening value. The frequency of detection, consistent concentrations, and absence of any historical information suggesting that arsenic was used at the facility suggests that arsenic is naturally occurring. The arsenic concentrations observed at the site range from 2.16 mg/kg to 42.9 mg/kg, with the average of 11.8 mg/kg being consistent with a documented regional background concentration of 13 mg/kg. This background value is documented in Appendix B: Development of Alternate Metal Standards in the *Closure Plan Review Guidance* (Ohio EPA, 2009) which is located at http://epa.ohio.gov/portals/32/pdf/2008CPRG.pdf. Arsenic is not discussed further in the subsequent sections.

5.1.2 SWMU 1: Former Flaring Pad

Nine borings were advanced at SWMU 1 around the former flaring pad location (see Figure 5-1). The types of material that were encountered during drilling activities consisted of asphalt cover to about 0.5 feet bgs, silts and clayey silts to about 7 feet bgs, silty sand to 11 feet bgs, and gravelly sand below 11 feet bgs to the end of boring at each locations.

The planned boring depth was 10 feet bgs; however, four of the nine borings (S01-SS01, S01-SS02, S01-SS05, and S01-SS08) were advanced to 25 feet bgs, and two borings (S01-SS03 and S01-SS06) were advanced to 15 feet bgs based on elevated PID readings observed in the soil samples. An additional sample was collected for laboratory analysis from the last intervals deeper than 10 feet bgs in five of these six borings.

Soil data was compared to human health RSLs and SSLs and the exceedances are shown on Figure 5-1. The analytical data are provided in Table 5-1, with the results summarized as follows:

- No VOCs were detected above RSLs.
- SVOCs exceeded RSLs in the southern borings S01-SS07, S01-SS08, and S01-SS09.
- Benzo(a)anthracene and benzo(a)pyrene was detected above RSLs from 0-2 feet bgs in S01-SS07, S01-SS08, and S01-SS09.
- Benzo(b)fluoranthene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene) were detected above RSLs from 0-2 feet in S01-SS09.
- Benzene was detected from 3-5 and 8-10 feet above protection of groundwater SSLs at S01-SS02.
- Tetrachloroethene exceeded the protection of groundwater SSLs at 0 through 10 feet at S01-SS02, 3-5 and 8-10 feet at S01-SS08 and 0-2 feet at S01-SS09.
- Trichloroethene exceeded the protection of groundwater SSLs at 0-2 feet at S01-SS02.
- 1,1-bipheyl exceeded the protection of groundwater SSLs from 0-2 feet at S01-SS01, S01-SS-02 and S01-SS06 and from 3-5 and 8-10 feet at S01-SS-02. ,
- Benzo(a)anthracene, benzo(b)fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene, and selenium also exceeded the protection of groundwater SSLs at SWMU 1.

5.1.3 SWMU 11: Satellite Accumulation Area - Ethafoam Plant

Five borings were advanced to 10 feet bgs at SWMU 11 around the concrete satellite accumulation storage area. The types of material that were encountered during drilling activities consisted of concrete cover to about 0.5 feet bgs; silts and clayey silts to about 7 feet bgs, with silty sand to 10 feet bgs.

The data are provided in Table 5-2. No VOCs or SVOCs were detected in excess of the RSLs for human health or SSLs for protection of groundwater. The sample locations are shown on Figure 5-2.

5.1.4 SWMU 12: Former Methylene Chloride Cleaning Tank

Two borings were advanced to at least 10 feet bgs at SWMU 12 around the former tank pad location. The types of material that were encountered during drilling activities consisted of concrete cover to about 0.8 feet, gravelly silts and clayey silts to about 7 feet bgs, gravelly silty sand to 10 feet bgs, and gravelly sand below 10 feet bgs.

One boring (S12-SS02) was advanced to 15 feet bgs based on elevated PID readings observed in the soil sample, but no soil samples were collected from 10-15 feet bgs because the highest PID reading was from 8-10 feet bgs.

The data are provided in Table 5-3. No VOCs or SVOCs were detected in excess of the RSLs for human health or SSLs for protection of groundwater. The sample locations are shown on Figure 5-3.

5.1.5 SWMU 15: Two Section Septic Tank System

Four borings were advanced to at least 10 feet bgs at SWMU 15 around the septic tank and a former sewer line. The soil types that were encountered during drilling activities consisted of clayey silts to about 15.5 feet bgs and silty sand to 25 feet bgs.

Boring S15-SS02 was advanced to 25 feet bgs, S15-SS03 was advanced to 15 feet bgs, and S15-SS04 was advanced to 14 feet bgs based on elevated PID readings observed in the soil samples. An additional sample was collected for laboratory analysis from the top of water table (20-22 feet bgs) at S15-SS02 and the bottom of bore hole at S15-SS03. S15-SS04 was advanced using a hand auger due to its proximity to an active utility line.

The exceedances are shown on Figure 5-4. The data are provided in Table 5-4. No VOCs exceeded the screening levels.

- Benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and dibenz(a,h)anthracene exceeded RSL screening levels and SSLs for protection of groundwater in both samples collected from 0-2 feet bgs in S15-SS03.
- Indeno(1,2,3-cd)pyrene exceeded RSL screening levels in one of the two samples collected from 0-2 feet in S15-SS03. It exceeded SSLs for protection of groundwater in both samples.
- Mercury exceeded SSLs for protection of groundwater and RSLs in the duplicate sample at S15-SS04 from 8-10 feet.

- Selenium exceeded SSLs for protection of groundwater in one of the two samples collected from 8-10 feet bgs in S15-SS04.
- Benzene exceeded SSLs for protection of groundwater in the duplicate sample at S15-SS04 from 8-10 feet and naphthalene exceeded in the normal sample.

5.1.6 SWMU 17: Stormwater Drainage System

Three borings were advanced to at least 10 feet bgs at SWMU 17. The soil types that were encountered during drilling activities consisted of silts to 8 feet bgs in the northern two borings and gravelly sand below 8 feet bgs. The silt layer extended to at least 10 feet in the southern boring.

One boring (S17-SS01) was advanced to 15 feet bgs, and one boring (S17-SS02) was advanced to 20 feet bgs based on elevated PID readings observed in the soil samples. An additional sample was collected for laboratory analysis from 13 to 15 feet bgs at S17-SS01 and 15 to 17 feet bgs at S17-SS02.

The exceedances are shown on Figure 5-5. The data are provided in Table 5-5. No soil VOCs or SVOCs exceeded the human health RSL screening levels. Chromium was detected at concentrations exceeding ecological screening values at the three borings from 0-2 feet. Selenium was detected at concentrations exceeding ecological screening values at S17-SS03 from 0-2 feet. Nitrobenzene was detected at concentrations exceeding protection of groundwater screening levels at S17-SS02 from 8-10 feet.

5.1.7 SWMU 19: Drainage Ditch to North

Two borings were installed at SWMU 19; one was advanced to 10 feet bgs, and the other to 20 feet bgs around the drainage ditch. The soil types that were encountered during drilling activities consisted of clayey silt to 2.5 feet bgs and silty sand below 2.5 feet bgs in the north, with silty sand to 3 feet bgs and gravelly sand below 3 feet bgs in the south.

Boring S19-SS02 was advanced to 20 feet bgs based on elevated PID readings observed in the soil samples. An additional sample was collected for laboratory analysis from 16-18 feet bgs in this borings.

The exceedances are shown on Figure 5-6. The data are provided in Table 5-6. No VOCs or SVOCs exceeded the human health RSLs or protection of groundwater SSL.

5.1.8 SWMU 24: Process Sewer Line

Eight borings were advanced to at least 10 feet bgs at SWMU 24 around the process sewer line. The soil types that were encountered during drilling activities consist of asphalt and gravel cover to 0.5 feet bgs, silts and clayey silts to depths of 8 to 18 feet bgs, underlain by gravelly sand.

Two of the eight borings (S24-SS01 and S24-SS02) were advanced to 25 feet bgs, and two borings (S24-SS04 and S24-SS08) were advanced to 20 feet bgs based on elevated PID readings observed in the soil samples. Additional sample was collected for laboratory analysis from 21-23 feet bgs at S24-SS01, 13-15 feet bgs at S24-SS02, and 13-15 feet bgs at S24-SS08.

The exceedances are shown on Figure 5-7. The data are provided in Table 5-7. The following exceedances of screening levels were noted:

- Ethylbenzene and 1-1 biphenyl exceeded RSL screening levels and the protection of groundwater SSLs from 13-15 feet bgs in S24-SS02. This boring was placed near the area of excavation associated with the closure of the drum storage area. Confirmation sampling after the excavation showed that some of the soil left in place exceeded the current RSL screening levels for ethylbenzene (Radian, 1997). Additional exceedances of the the protection of groundwater SSLs at this location included 1,3,5-Trimethylbenzene, benzene, ethylbenzene, isopropylbenzene, n-propylbenzene, m,p- and o-xylene and styrene.
- Benzo(a)anthracene exceeded RSL screening levels from 0-2 feet bgs in S24-SS01. It also exceeded the protection of groundwater SSLs from 0-2 feet in S24-SS01, S24-SS02, S24-SS-03 and S24-SS06.
- Benzo(a)pyrene exceeded RSLs from 0-2 feet bgs in S24-SS01, S24-SS02, S24-SS04, and S24-SS06.
- Benzo(b)fluoranthene was detected at concentrations exceeding RSLs and protection of groundwater SSLs at S24-SS01 and S24-SS02 from 0-2 feet. It was also detected at concentrations exceeding protection of groundwater SSLs at S24-SS03, and S24-SS04 from 0-2 feet.
- Dibenz(a,h)anthracene was detected at concentrations exceeding RSLs and protection of groundwater SSLs at S24-SS01 and S24-SS02 from 0-2 feet.
- Indeno(1,2,3-cd)pyrene was detected at concentrations exceeding RSLs and protection of groundwater SSLs at S24-SS02 from 0-2 feet.

5.1.9 SWMU 25-28: Former Wastewater Treatment System

Four borings were advanced to at least 10 feet bgs at SWMU 25-28 around the former wastewater treatment system. The soil types that were encountered during drilling activities consisted of gravelly sand to about 2 feet bgs and clayey silt below 2 feet bgs to the end of borehole.

One boring (S25-SS03) was advanced to 15 feet bgs based on elevated PID readings observed in the soil samples, but inadvertently no sample was collected for laboratory analysis from deeper than 10 feet bgs.

The exceedances are shown on Figure 5-8. The data are provided in Table 5-8. No VOCs exceeded the screening levels. SVOCs exceeded screening levels in the southern borings S25-SS03 and S25-SS04.

- 1,1-biphenyl was above the RSL screening level and the protection of groundwater SSLs from 8-10 feet bgs from both samples in S25-SS03.
- Benzo(a)pyrene was detected above the screening level from 0-2 feet bgs in S25-SS03 and from 3-5 feet bgs in S25-SS04. Benzo a)anthracene and benzo(b)fluoranthene were detected above protection of groundwater RSLs at this location.

5.1.10 SWMU 29: Former Used Filter Sand Pile

Two borings were advanced to 10 feet bgs at SWMU 29 around the former used filter sand pile. The soil types that were encountered during drilling activities consisted of top soil or sand to 0.5 or 3 feet bgs and clayey silts under the sand.

The exceedances are shown on Figure 5-9. The data are provided in Table 5-9. No VOCs or SVOCs exceeded the human health or ecological screening levels or protection of groundwater SSLs. Selenium and chromium exceeded ecological screening levels from 0-2 feet bgs in both borings.

5.1.11 AOC D: Underground Catalyst Storage Tank

Two borings were advanced below 10 feet bgs at AOC D around the former catalyst storage tank location. The soil types that were encountered during drilling activities consist of concrete to 3 feet bgs, sand in the northern boring and clay/silt in the southern boring to 12 feet bgs, and gravelly sand below 12 feet bgs.

Boring AOD-SS01 was advanced to 25 feet bgs and boring AOD-SS02 was advanced to 15 feet bgs based on elevated PID readings observed in the soil samples. An additional sample was collected for laboratory analysis from deeper from 21-23 feet bgs at AOD-SS01 and 13-15 feet bgs at AOD-SS02.

The exceedances are shown on Figure 5-10. The data are provided in Table 5-10. No VOCs or SVOCs were detected in excess of RSL screening levels. Benzene exceeded the protection of groundwater SSLs at AOD-SS02 from 0-2 feet.

5.2 Sediment Results

One sediment sample was collected at the stormwater drainage system at SWMU 17. The detections are shown on Figure 5-11 and the data are provided in Table 5-11. Five sediment samples were collected at SWMU 18 at approximately 300 to 1,200-foot intervals within the length of the drainage ditch. The detections are shown on Figure 5-11. The data are provided in Table 5-12.

The data were screened against human health and ecological risk screening levels and protection of groundwater SSLs.

- Acenaphthylene and selenium also exceeded ecological screening levels in the sediment sample. Pentachlorophenol exceeded the protection of groundwater SSLs in sediment sample S17-SD01.
- 2-methylnaphthalene, acetone, anthracene, acenaphthylene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, fluoranthene, fluorine, indeno(1,2,3-cd)pyrene and pyrene exceeded RSLs at S18-SD01.
- Benzo(a)anthracene and benzo(a)pyrene exceeded both RSLs and protection of groundwater SSLs at S18-SD01.
- Benzo(b)fluoranthene exceeded protection of groundwater SSLs at S18-SD01.
- Acenaphthylene exceeded its ecological screening level in all samples except S18-SD02.

- Acetone exceeded its ecological screening level in S18-SD01 and both samples from S18-SD02.
- Pyrene exceeded its ecological screening level in S18-SD01, one of the two samples from S18-SD02, and SD04.
- Selenium exceeded ecological screening levels in both samples from S18-SD02, S18-SD04, and S18-SD05.
- 11,1-Biphenyl exceeded protection of groundwater SSLs in S18-SS01 and in the duplicate and normal samples from S18-SD02.

5.3 Groundwater Results

Groundwater grab samples were collected from two onsite wells, Water Well 2 and Water Well 5, as well as from a spigot that was fed by a storage tank that holds water from these two wells. The samples were analyzed for VOCs and the data are presented in Table 5-13. The data was not screened against any screening criteria; however, only one analyte exceeded the reported sample quantitation limit. This analyte, 2-chloroethyl vinyl ether, was rejected because of the of hydrochloric acid (HCl) preservation in the samples and concentrations could not be determined. This analyte is not known to have been used onsite, and there is no historical reason to assume that detected concentrations would be found.

SECTION 6

Screening-Level Human Health Risk Assessment

A screening-level human health risk assessment (SLHHRA) was performed using the Phase 1 RFI data to evaluate potential risks associated with exposure to soil and sediment by potential current and future receptor populations. Based on the objectives of the Phase 1 RFI, only soil and sediment samples were collected for analyses to provide the data necessary to perform an initial site characterization. The results of the SLHHRA provide a preliminary indication of potential risks from chemicals of potential concern (COPCs) and are used to help determine whether the site requires further evaluation (e.g., a baseline risk assessment or additional data collection) or no further action with respect to human health risks associated with soil and sediment under current and future industrial site use.

The basic framework for this risk screening has been derived from the USEPA *Risk Assessment Guidance for Superfund, Part A, Volume 1* (RAGS) and associated guidance documents (USEPA 1989, 1990, 1991). This risk screening includes estimates of human health risks associated with exposure to the soil and sediment as appropriate for each SWMU and AOC. The SLHHRA was performed in a phased approach, as described below.

6.1 Data Evaluation

Soil and sediment samples collected from each SWMU and AOC in December 2011 and January 2012 were evaluated in the SLHHRA. The data evaluated in the SLHHRA are presented in Tables 5-1 through 5-13. The data included in the SLHHRA were validated. The following bullets discuss how the qualified data were evaluated in the risk assessment:

- Rejected ("R" qualified) data were excluded from the risk screening.
- Estimated ("J" qualified) data were treated as detected concentrations in the risk screening.
- For duplicate samples, the maximum concentration between the two samples was used as the sample concentration.

The methodology used in this preliminary COPC screening assessment is consistent with that described in the USEPA-approved work plan (CH2M HILL 2011). Soil samples collected from discrete depths between 0 and 10 feet bgs during the Phase 1 RFI in December 2011 were evaluated. Surface soil samples collected from 0 to 2 feet bgs were used to evaluate the current industrial scenario and current trespasser/recreational user scenario. Because future invasive activities may disturb soil in the shallow subsurface (0 to 10 feet bgs) and bring current subsurface soil to the ground surface where contact may occur, soil from the 0- to 10-foot interval ("total soil") was used to evaluate reasonably foreseeable future scenarios.

6.2 Human Health Conceptual Site Model

The human health conceptual exposure model (CEM) presents an overview of site conditions, potential contaminant migration pathways, and exposure pathways to potential receptors. Section 2 presents the site history and setting, which is summarized below. Figures 6-1 through 6-11 show the conceptual model of potential exposure pathways for each SWMU and AOC. These pathways are described in further detail in the following paragraphs.

The facility currently operates three plants to manufacture and distribute polymeric beads and foam. Facility buildings are used for manufacturing, warehouse, and office space. Currently, construction or excavation activities are not taking place at the site. Future land use is expected to remain similar to current land use and would therefore be either industrial. Future residential development of the site is unlikely.

Under current land use conditions, public access to the site area where operations occur (including the SWMUs and AOC evaluated in the Phase 1 RFI, with the exception of portions of SWMU 18) is restricted by fencing and a staffed guard shack is present at the entrance. Portions of SWMU 18 are not within the fenced and access-restricted areas. Therefore, trespassers could access the site in these areas and the trespasser receptor is considered potentially exposed to surface soils at SWMU 18. Due to existing concrete cover at SWMUs 1, 11, 12, and 15, direct contact to soil is not currently present. Additionally, there is no direct access to AOC D because it is an underground concrete vault. Potential current receptors include site workers and trespassers. The current receptors may come in contact with surface soil; exposure routes may include incidental ingestion, dermal contact, and inhalation of volatile and particulate emissions from the surface soil.

Potential future receptors include construction workers, in addition to the current receptors (site workers and trespassers). Future receptors may also come in contact with surface soil (incidental ingestion, dermal contact, and inhalation of volatile and particulate emissions from the surface soil). In addition, it is assumed that the future site workers and construction workers could be exposed to subsurface soil if future industrial buildings or piping or other underground utilities are repaired or constructed at the site and the soil is re-worked, bringing the subsurface soil to the surface. Exposure routes for the subsurface soil are the same as those for current surface soil (incidental ingestion of the soil, dermal contact with the soil, and inhalation of volatile and particulate emissions from the soil).

There is no current drinking water use of groundwater at the site. Five non-potable water supply wells are located onsite. The facility reports that Well 5 is used as needed for the wastewater treatment plant, and Well 2 is used for fire protection. The remaining three wells are not used. SWI supplies drinking water purchased from the City of Portsmouth, Ohio, to the facility and most of the residents within the vicinity of the facility. This water is supplied from the City of Portsmouth's filtration plant located on the Ohio River approximately 15 miles upstream of the facility. According to ODNR data, 10 privately-owned wells are located within 1 mile of the site and the use of these wells is unknown.

6.3 SLHHRA Approach

The SLHHRA was conducted in two steps. Step 1 identified COPCs in soil and sediment by comparison to risk-based screening levels. The identified COPCs at each SWMU and AOC were evaluated in Step 2 using maximum detected soil and sediment concentrations and a risk ratio approach (USEPA 1991, 2011) to determine whether concentrations pose risks to potential receptor populations above the USEPA risk management levels (target cancer risk of $1x10^{-6}$ to $1x10^{-4}$ and target non-cancer hazard index [HI] of 1). A detailed description of the SLHHRA process is provided below.

6.3.1 Step 1

The COPC screening process was conducted for soil and sediment on a site-specific basis (by SWMU or AOC). Surface soil, subsurface soil, and sediment analytical results were screened against the industrial soil RSLs (USEPA 2011). The RSLs based on non-carcinogenic health endpoints were reduced by a factor of 10 (i.e., adjusted to a hazard quotient [HQ] = 0.1) to account for the potential presence of multiple constituents affecting the same target organ, while no adjustment was made for the RSLs based on carcinogenic health endpoints (i.e., the RSLs were based on a target excess lifetime cancer risk [ELCR] of $1x10^{-6}$). For those constituents with more than one RSL (e.g., carcinogenic-based RSL, non-carcinogenic-based RSL [HQ = 0.1]), the lowest value was selected as the final RSL for that constituent. The industrial RSLs were used for selecting soil and sediment COPCs. Detected constituents that had no RSL were compared to RSLs for surrogate chemicals, if available. Soil and sediment results were screened against the USEPA RSL for trivalent chromium as a surrogate for total chromium because available documentation indicates that chromium has not been utilized in the manufacturing process at the site. Trivalent chromium can occur naturally in soil and groundwater and it is unlikely that hexavalent chromium would be present in soil at the site.

The detection limits for the non-detected constituents were also compared to the screening levels discussed above (Appendix F). The range of detection limits for 1,2-dibromo-3-chloropropane and n-nitroso-di-n-propylamine were slightly higher than the respective screening levels (difference in detection limit and screening level ranging from 0.01 to 0.041). Since these constituents were not detected in the soil samples, they were not identified as COPCs for further evaluation.

If the maximum detected concentration in soil or sediment exceeded the appropriate screening value, the COPC was retained for further evaluation and the screening level risk evaluation proceeded to Step 2.

6.3.2 Step 2

For COPCs retained for further evaluation following Step 1, a corresponding non-cancer hazards and ELCRs were calculated on a site-specific (SWMU and/or AOC) basis using methods described below. For those constituents identified as COPCs based on soil saturation-based RSLs, corresponding hazards and risks were calculated using risk-based RSLs.

Non-cancer Hazard Estimation Methods

For non-cancer effects, the potential for a receptor to develop an adverse effect was estimated by comparing the predicted level of exposure for a particular chemical with the highest level of exposure that is considered protective (i.e., the screening level).

For chemicals identified as COPCs in Step 1, a corresponding HQ was calculated using the following equation:

$$HQ = \frac{\text{Maximum detected soil or sediment concentration (mg/kg) x target hazard (1)}}{\text{Industrial Soil RSL}}$$

mg/kg = milligrams per kilogram

The maximum detected concentration (the same concentration that was used in Step 1) was used in Step 2. RSLs for non-carcinogenic effects were not adjusted by 10 as was done in Step 1. Instead, they are used as presented in the RSL table.

The individual constituent HQs at each SWMU and AOC then were summed to obtain a site-specific HI to assess the potential for non-carcinogenic health effects posed by exposure to multiple constituents (USEPA 1986). The summation of individual constituent HQs to determine the HI assumes that non-carcinogenic hazards associated with exposure to more than one constituent are additive. Synergistic or antagonistic interactions between constituents are not considered. The HI may exceed 1 even if all of the individual HQs are less than 1. An HI greater than 1 indicates that there is some potential for adverse non-carcinogenic health effects associated with exposure to the constituents of concern. However, if the HI is greater than 1, the target organ/effect specific HIs can be calculated (summing all HQs for constituents that affect the same target organ), to determine whether the HI for a specific target organ/effect is greater than 1. If the HI for each target organ/effect is not greater than 1, it can be assumed that there is no unacceptable non-carcinogenic hazard to the receptor. If the cumulative corresponding HI by target organ/effect is greater than 1, then further evaluation of the site may be necessary.

6.3.3 Carcinogenic Risk Estimation

The potential for carcinogenic effects associated with exposure to site-related constituents was evaluated by estimating the ELCR. ELCR is the incremental increase in the probability of developing cancer during one's lifetime in addition to the background probability of developing cancer. For example, an individual exposed to a carcinogen with a calculated cancer risk of $2x10^{-6}$ indicates the probability of the individual getting cancer increases by 2 in 1 million above background levels.

Similar to the approach for non-carcinogenic hazard estimates for each sample location, constituent-specific ELCRs were calculated using a using a risk ratio approach (USEPA 1991).

For chemicals identified as COPCs in Step 1, chemical-specific ELCRs were calculated for each identified using the following equation:

$$\text{ELCR} = \frac{\text{Maximum detected soil or sediment concentration (mg/kg) x target risk level } (1\text{x}10^{-6})}{\text{Industrial Soil RSL}}$$

mg/kg = milligrams per kilogram
ELCR = excess lifetime carcinogenic risk

The individual constituent ELCRs at each SWMU and AOC then were summed to obtain a site-specific ELCR to assess the potential for carcinogenic health effects posed by exposure to multiple constituents (USEPA 1986). As described in the USEPA-approved work plan (CH2M HILL 2011), if it is determined that cumulative risks are within USEPA's risk management range of $1\text{x}10^{-6}$ to $1\text{x}10^{-4}$ for carcinogenic compounds, and the cumulative HI is less than 1, then no further risk evaluation will be recommended.

6.4 SLHHRA Results

Results of the SLHHRA for each potential soil exposure interval are presented in Table 6-1 through Table 6-23, and are summarized below:

- **SWMU 1 Former Flaring Pad:**
  Five polynuclear aromatic hydrocarbons (PAHs) (benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, dibenz[a,h]anthracene, indeno[1,2,3-cd]pyrene) and arsenic were identified as COPCs in surface soil and total soil (Table 6-1). Based on constituents in the same class, carcinogenic polynuclear aromatic hydrocarbons (cPAHs) benzo(k)fluoranthene and chrysene were also included in the risk ratio calculations with the five PAHs identified as COPCs. The ELCRs associated with surface soil ($2\text{x}10^{-5}$) and total soil ($2\text{x}10^{-5}$) at SWMU-01 were within USEPA's risk management range of $1\text{x}10^{-6}$ to $1\text{x}10^{-4}$ (Table 6-2). The estimated cumulative non-cancer HIs for surface soil (0.06) and total soil (0.07) were below USEPA's threshold of 1 (Table 6-2). Based on these results, no further evaluation is necessary for potential exposures to soil associated with industrial land use at SWMU 1.

- **SWMU 11 Satellite Accumulation Area – Ethafoam Plant:**
  Arsenic was identified as COPCs in surface soil and total soil (Table 6-3). The ELCRs associated with surface soil ($9\text{x}10^{-6}$) and total soil ($1\text{x}10^{-5}$) at SWMU-11 were within USEPA's risk management range of $1\text{x}10^{-6}$ to $1\text{x}10^{-4}$ (Table 6-4). The estimated cumulative non-cancer HIs for surface soil (0.05) and total soil (0.06) were below USEPA's threshold of 1 (Table 6-4). Based on these results, no further evaluation is necessary for potential exposures to soil associated with industrial land use at SWMU 11.

- **SWMU 12 Former Methylene Chloride Cleaning Tank:**
  Arsenic was identified as COPCs in surface soil and total soil (Table 6-5). The ELCRs associated with surface soil ($8x10^{-6}$) and total soil ($8x10^{-6}$) at SWMU-12 were within USEPA's risk management range of $1x10^{-6}$ to $1x10^{-4}$ (Table 6-6). The estimated cumulative non-cancer HIs for surface soil (0.05) and total soil (0.05) were below USEPA's threshold of 1 (Table 6-6). Based on these results, no further evaluation is necessary for potential exposures to soil associated with industrial land use at SWMU 12.

- **SWMU 15 Two Section Septic Tank System:**
  Five PAHs (benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, dibenz[a,h]anthracene, indeno[1,2,3-cd]pyrene) and arsenic were identified as COPCs in surface soil and total soil (Table 6-7).

  Based on constituents in the same class, cPAHs benzo(k)fluoranthene and chrysene were also included in the risk ratio calculations with the five PAHs identified as COPCs. The ELCRs associated with surface soil ($3x10^{-5}$) and total soil ($3x10^{-5}$) at SWMU-15 were within USEPA's risk management range of $1x10^{-6}$ to $1x10^{-4}$ (Table 6-8). The estimated cumulative non-cancer HIs for surface soil (0.04) and total soil (0.05) were below USEPA's threshold of 1 (Table 6-8). Based on these results, no further evaluation is necessary for potential exposures to soil associated with industrial land use at SWMU 15.

- **SWMU 17 Stormwater Drainage System:**
  Arsenic was identified as a COPC in both sediment sample locations and in surface soil and total soil at the same soil sample location (Table 6-9) at SWMU-17. The ELCRs associated with sediment ($7x10^{-6}$) and surface soil and total soil ($9x10^{-6}$) were within USEPA's risk management range of $1x10^{-6}$ to $1x10^{-4}$ (Table 6-10). The estimated cumulative non-cancer HIs for sediment (0.04) and surface soil and total soil (0.05) were below USEPA's threshold of 1 (Table 6-10). Based on these results, no further evaluation is necessary for potential exposures to soil associated with industrial land use at SWMU 17.

- **SWMU 18 Drainage Ditch to Big Thief Creek:**
  Benzo(a)pyrene and arsenic were identified as COPCs in sediment (Table 6-11). Based on constituents in the same class, cPAHs benzo(a)anthracene, benzo(b)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene were also included in the risk ratio calculations with benzo(a)pyrene. The ELCR associated with sediment ($1x10^{-5}$) at SWMU-18 was within USEPA's risk management range of $1x10^{-6}$ to $1x10^{-4}$ (Table 6-12). The estimated cumulative non-cancer HI for sediment (0.06) was below USEPA's threshold of 1 (Table 6-12). Based on these results, no further evaluation is necessary for potential exposures to soil associated with industrial land use at SWMU 18.

- **SWMU 19 Drainage Ditch to North:**
  Arsenic was identified as a COPC in both surface soil and total soil at the same soil sample location (Table 6-13) at SWMU 19. The ELCR associated with surface soil and total soil ($8x10^{-6}$) was within USEPA's risk management range of $1x10^{-6}$ to $1x10^{-4}$ (Table 6-14). The estimated cumulative non-cancer HIs for surface soil and total soil (0.05) were below USEPA's threshold of 1 (Table 6-14). Based on these results, no

further evaluation is necessary for potential exposures to soil associated with industrial land use at SWMU 19.

- **SWMU 24 Process Sewer Line:**
  Five PAHs (benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, dibenz[a,h]anthracene, indeno[1,2,3-cd]pyrene) and arsenic were identified as COPCs in surface soil and total soil (Table 6-15). Based on constituents in the same class, cPAHs benzo(k)fluoranthene and chrysene were also included in the risk ratio calculations with the five PAHs identified as COPCs. The ELCRs associated with surface soil ($2x10^{-5}$) and total soil ($3x10^{-5}$) at SWMU-24 were within USEPA's risk management range of $1x10^{-6}$ to $1x10^{-4}$ (Table 6-16). The estimated cumulative non-cancer HIs for surface soil (0.06) and total soil (0.07) were below USEPA's threshold of 1 (Table 6-16). Based on these results, no further evaluation is necessary for potential exposures to soil associated with industrial land use at SWMU 24.

- **SWMU 25-28 Former Wastewater Treatment System:**
  Arsenic was identified as a COPC in both surface soil and total soil at the same soil sample location (Table 6-17) at SWMU-25-28. 1,1'-Biphenyl and benzo(a)pyrene were also identified as COPCs in total soil (Table 6-17). Based on constituents in the same class, six additional cPAHs (benzo[a]anthracene, benzo[b]fluoranthene, benzo[k]fluoranthene, chrysene, dibenz[a,h]anthracene, and indeno[1,2,3-cd]pyrene) were also included in the risk ratio calculations for total soil. The ELCR associated with surface soil ($3x10^{-5}$) and total soil ($3x10^{-5}$) at SWMU 25-28 were within USEPA's risk management range of $1x10^{-6}$ to $1x10^{-4}$ (Table 6-18). The estimated cumulative non-cancer HIs for surface soil (0.2) and total soil (0.5) were below USEPA's threshold of 1 (Table 6-18). Based on these results, no further evaluation is necessary for potential exposures to soil associated with industrial land use at SWMU 25-28.

- **SWMU 29 Former Used Filter Sand Pile:**
  Arsenic was identified as COPCs in surface soil and total soil (Table 6-19). The ELCRs associated with surface soil ($9x10^{-6}$) and total soil ($1x10^{-5}$) at SWMU 29 were within USEPA's risk management range of $1x10^{-6}$ to $1x10^{-4}$ (Table 6-20). The estimated cumulative non-cancer HIs for surface soil (0.06) and total soil (0.08) were below USEPA's threshold of 1 (Table 6-20). Based on these results, no further evaluation is necessary for potential exposures to soil associated with industrial land use at SWMU 29.

- **AOC D Underground Catalyst Storage Tank:**
  Arsenic was identified as a COPC in surface soil and total soil (Table 6-21). The ELCRs associated with surface soil ($5x10^{-6}$) and total soil ($9x10^{-6}$) at AOC D were within USEPA's risk management range of $1x10^{-6}$ to $1x10^{-4}$ (Table 6-22). The estimated cumulative non-cancer HIs for surface soil (0.03) and total soil (0.05) were below USEPA's threshold of 1 (Table 6-22). Based on these results, no further evaluation is necessary for potential exposures to soil associated with industrial land use at AOC D.

6.5 SLHHRA Summary and Conclusions

A summary of the risk estimates associated with soil and sediment at each SWMU and AOC is provided in Table 6-23. Arsenic was identified as a COPC in all sediment, surface soil,

and subsurface soil samples. The distribution and concentrations of arsenic were similar at all sample locations across the evaluated SWMUs and AOC. These results may be reflective of naturally-occurring concentrations of arsenic rather than site-related impacts. Furthermore, the estimated excess lifetime cancer risks and non-cancer hazards associated with all COPCs, including arsenic, were within USEPA's risk management range for cancer risks and below the USEPA non-cancer threshold. Based on the results of this SLHHRA for soil and sediment exposure scenarios associated with current and anticipated future industrial land use, no further evaluation is necessary for soil and sediment at the evaluated SWMUs and AOC.

SECTION 7

Ecological Risk Screening

This section presents an ecological risk screening for ecologically relevant facility sites included in the Phase 1 RFI. These site-specific screenings represent the initiation of the ecological risk assessment (ERA) process. They were conducted to determine whether COPCs are present at sites, and if so, if additional phases of investigation and assessment are necessary in order to (a) delineate the full extent of contamination, and (b) assess potentially unacceptable ecological risks via formalized and more comprehensive SWMU- and AOC-specific ERAs. Based on the objectives of the Phase 1 RFI, only soil and sediment samples were collected for facility sites to provide data necessary to perform an initial site characterization of AOCs and SWMUs, improve understanding of fate and transport of constituents detected, and provide initial data for future ERAs. Based on the results of the Phase 1 risk screenings, additional media might be considered in subsequent phases of investigation.

7.1 Problem Formulation

These ecological risk screenings were conducted in accordance with *Ecological Risk Assessment Guidance Document* (Ohio EPA 2008) and USEPA guidance (USEPA 1997, 1998). The ERA process consists of three main components: (1) problem formulation; (2) exposure and effects analysis; and (3) risk characterization. The eight-step ERA process is depicted in Figure 7-1. The screening problem formulation, which represents Step 1 of the ERA process, was presented as part of the USEPA-approved work plan (CH2M HILL 2011) to establish the goals, scope, and focus of the ecological investigation of facility sites. Represented here, Step 1 consisted of carrying out the following for each site:

- Characterizing the environmental setting in terms of the habitats and biota known or likely to be present.
- Using available analytical data or knowledge of suspected releases based on known site history (e.g., documented site activities and/or waste streams) to identify potential constituents of interest in ecologically relevant media.
- Developing a conceptual site model (CSM) that identifies and evaluates potential source areas, transport pathways, fate and transport mechanisms, exposure media, exposure pathways and routes, and receptors. The ecological CSM was presented in the work plan and summarized on Figure 7-2.

7.1.1 Selection of Ecologically Relevant Sites

Step 1 (problem formulation) was used to determine which SWMUs or AOCs could be considered ecologically relevant and warrant further evaluation via the ERA process. This initial step was performed during development of the work plan based on information learned by a CH2M HILL ecologist during a site reconnaissance (CH2M HILL 2011). Based on this, the following SWMUs and AOC were identified as ecologically relevant:

- SWMU 17 – Stormwater Drainage Ditch
- SWMU 18 – Drainage Ditch to Big Thief Creek
- SWMU 19 – Drainage Ditch to North
- SWMU 29 – Former Used Filter Sand Pile

Eight sites do not warrant further evaluation within the ERA because they are within or near the current and/or former process areas of the facility; surrounded by buildings, pavement, and/or roads; enclosed partially or completely by fencing or berms; and contain no viable habitats. Therefore, the answer to Question 1 for each of these sites is "No," and so it follows that no receptors or receptor groups are expected to use these sites; thus, there is no potential for complete exposure pathways. As such, ERAs will not be conducted for the following sites, and they are not considered or discussed further:

- Four other sites (SWMUs 25, 26, 27, and 28) that have viable habitats (adjacent terrestrial grasslands) but are located within process areas
- Areas that are either paved or covered with gravel and could not support viable terrestrial receptors

For SWMU 37, the answer to Question 1 also was "Yes" because of a small fire pond. This unit consists of a concrete basin with a 25,000-gallon capacity located north of the wastewater treatment system. The unit receives untreated process water from the process sewer system. Given the nature of this basin (i.e., concrete structure), this SWMU could not likely support aquatic life (other than opportunistic aquatic insects such as fly larvae), and as a result, further evaluation of SWMU 37 is not warranted with respect to ecological risk.

7.1.2 Chemicals of Interest

Chemical analytical data for surface soil and sediment samples collected during the January 2012 field investigation at ecologically relevant sites were used for screening (Table 7-2). Details regarding how and where these samples were collected are summarized in earlier sections of this report. Even though samples were collected from two to three depths at each site, only data for surface soil samples (those collected from 0 to 2 feet bgs) were evaluated. Although some potential receptors may burrow, it was assumed that the majority of the ecological receptors, regardless of trophic level, would most likely only come in contact with constituents in these shallower intervals. Data from subsurface soil samples (e.g., 2 to 3, 3 to 5, and/or 8 to 10 feet bgs) were not used. The samples used for the ecological risk screenings, and parameters analyzed for each, are listed in Table 7-2.

7.2 Exposure Assessment

The objective in this step is the estimation of exposure point concentrations (EPCs), or the COPC concentrations in media to which ecological receptors might be exposed, either directly or indirectly (i.e., through their food webs).

7.2.1 Direct Exposures

The EPC for this assessment was the maximum detected COPC concentration in the site-specific surface soil and surface sediment data sets. Maximum concentrations were used to estimate the EPC in order to conservatively estimate potential exposures for the ecological receptors selected as assessment endpoints (Table 7-3).

7.2.2 Indirect (Food Web) Exposures

COPCs retained as chemicals of potential ecological concern (COPECs) based on direct exposures were further evaluated with respect to indirect exposures using receptor specific food web models. Food web exposures were evaluated for the following receptors used to represent surrogates for receptors that are known to be present or likely to be present based on the CSM:

- Red-tailed hawk (*Buteo jamaicensis*)—avian terrestrial carnivore
- Mallard duck (*Anas platyrhynchos*)—avian semi-aquatic herbivore
- Marsh wren (*Cistothorus palustris*)—avian semi-aquatic insectivore
- Mourning dove (*Zenaida macroura*)—avian terrestrial herbivore
- American robin (*Turdus migratorius)*—avian terrestrial insectivore
- Short-tailed shrew (*Blarina brevicauda*)—mammalian terrestrial insectivore
- White-tailed deer (*OdoCOPCleus virginianus*)—mammalian terrestrial herbivore
- White-footed mouse (*Peromyscus leucopus*)—mammalian terrestrial herbivore
- Red fox (*Vulpes vulpes*)—mammalian terrestrial carnivore
- Muskrat (*Ondatra zibethicus*)—mammalian semi-aquatic herbivore

For screening-level exposure estimates, uptake of COPCs by these receptors from abiotic media via their prey items was modeled using literature-derived, central tendency (median or mean) estimates for bioconcentration factors (BCFs) or bioaccumulation factors (BAFs). Available BCFs and BAFs used in this ERA are presented in Tables 7-4 and 7-5. A default factor of 1 was used only when data were not available in the literature for a COPC. The models and parameter values used for calculating these tissue calculations are outlined in the following subsections.

7.2.2.1 Terrestrial Plants

Tissue concentrations in the aboveground vegetative portion of terrestrial plants were estimated by multiplying the surface soil EPC for each chemical by chemical-specific soil-to-plant BCFs obtained from the literature.

The BCF values were based upon root uptake from soil and upon the ratio between dry-weight soil and dry-weight plant tissue. Literature values based upon the ratio between dry-weight soil and wet-weight plant tissue were converted to a dry-weight basis by dividing the wet-weight BCF by an estimated solids content for terrestrial plants (15 percent [0.15]; Sample et al. 1997).

For organic chemicals without literature-based BCFs, soil-to-plant BCFs were estimated using the algorithm provided in USEPA (2005b):

$$log\ BCF = (-0.229)\ (log\ K_{ow}) + 1.0237$$

where: BCF = Soil-to-plant BCF (unitless; dry-weight basis)
K_{ow} = Octanol-water partitioning coefficient (unitless)

7.2.2.2 Soil Invertebrates (Earthworms)

Tissue concentrations in soil invertebrates were estimated by multiplying the surface soil EPC for each chemical by chemical-specific soil-to-invertebrate BAF values obtained from the literature.

BCFs are calculated by dividing the concentration of a chemical in organism tissue by the concentration of that same chemical in the surrounding environmental medium (in this case, soil) without accounting for uptake via the diet. BAFs consider both direct exposure to soil and exposure via the diet. Since earthworms consume soil, BAFs are more appropriate than BCFs and were used where available. BAFs based upon depurated analyses (soil was purged from the gut of the earthworm prior to analysis) were given preference over undepurated analyses when selecting BAF values because the direct ingestion of soil was accounted for separately in the food web model.

The BAF values selected were based upon the ratio between dry-weight soil and dry-weight earthworm tissue. Literature values based upon the ratio between dry-weight soil and wet-weight earthworm tissue were converted to a dry-weight basis by dividing the wet-weight BAF by the estimated solids content for earthworms (16 percent [0.16]; USEPA 1993). For chemicals without available measured BAFs, an earthworm BAF was estimated using data for similar chemicals or a BAF of 1.0 was assumed.

7.2.2.3 Small Mammals

Whole-body tissue concentrations in small mammals (shrews and mice) were estimated using one of two methodologies. For chemicals with literature-based soil-to-small mammal BAFs, the small mammal tissue concentration was calculated by multiplying the surface soil EPC for each chemical by a chemical-specific soil-to-small mammal BAF obtained from the literature.

The BAF values used were based upon the ratio between dry-weight soil and whole-body dry-weight tissue. Literature values based upon the ratio between dry-weight soil and wet-weight tissue were converted to a dry-weight basis by dividing the wet-weight BAF by the estimated solids content for small mammals (32 percent [0.32]; USEPA 1993). BAFs for shrews were those reported in Sample et al. (1998b) for insectivores (or for general small mammals if values for insectivores were unavailable), for voles were those reported for herbivores, and for mice were those reported for omnivores.

For chemicals without soil-to-small mammal BAF values, an alternate approach was used to estimate whole-body tissue concentrations. Because most chemical exposure for these small mammal species is via the diet, it was assumed that the concentration of each chemical in the small mammal's tissues is equal to the chemical concentration in its diet multiplied by a

diet to whole-body BAF (wet-weight basis) derived from the literature. For chemicals lacking diet to whole-body BAF values, a BAF of 1 was assumed.

7.2.2.4 Aquatic Plants

Tissue concentrations in the vegetative portion of rooted aquatic plants were estimated using the same methodologies described for terrestrial plants except that sediment (not soil) EPCs were used in the calculation.

7.2.2.5 Benthic Invertebrates

Tissue concentrations in benthic invertebrates were estimated by multiplying the sediment EPC for each chemical by chemical-specific sediment-to-invertebrate BAF values obtained from the literature.

The BAF values used were based upon the ratio between dry-weight sediment and dry-weight invertebrate tissue. BAFs based upon depurated analyses (sediment was purged from the gut of the organism prior to analysis) were given preference over undepurated analyses when selecting BAF values because direct ingestion of sediment was accounted for separately in the food web model.

Literature values based upon the ratio between dry-weight sediment and wet-weight invertebrate tissue were converted to a dry-weight basis by dividing the wet-weight BAF by the estimated solids content for benthic invertebrates (21 percent [0.21]; USEPA 1993). For chemicals without available measured BAFs, a BAF was estimated using data for similar chemicals or a BAF of 1.0 was assumed.

7.2.2.6 Fish

Tissue concentrations in whole-body fish were estimated by multiplying the sediment EPC for each chemical by chemical-specific sediment-to-fish BAFs obtained from the literature.

The BAF values were based upon the ratio between dry-weight sediment and dry-weight fish tissue. Literature values based upon the ratio between dry-weight sediment and wet-weight fish tissue were converted to a dry-weight basis by dividing the wet-weight BAF by the estimated solids content for fish (25 percent [0.25]; USEPA 1993). For chemicals without literature-based sediment-to-fish BAFs, a BAF was estimated using data for similar chemicals or a BAF of 1.0 was assumed.

7.2.2.7 Dietary Intake Estimation

The dietary intake (i.e., applied daily dose) of each constituent (in mg of constituent per kg of body weight per day) was calculated for each of the above receptor species using species-specific life history information, where available, and the following formula (modified from USEPA 1993):

$$DI_x = \frac{[[\sum_i (FIR)(FC_{xi})(PDF_i)] + [(FIR)(EPC_x)(PDS)]]}{BW}\left(AUF\right)$$

Where:

DI_x = Dietary intake for COPC x (mg constituent/kg body weight/day)

FIR	=	Food ingestion rate (kg/day, dry-weight)
FC_{xi}	=	Concentration of COPC x in food item i (mg/kg, dry-weight)
PDF_i	=	Proportion of diet composed of food item i (dry-weight basis)
EPC_x	=	Concentration of COPC x in soil (mg/kg, dry-weight)
PDS	=	Proportion of diet composed of soil (dry-weight basis)
BW	=	Body weight (kg, wet-weight)
AUF	=	Area use factor; percent (decimal) of habitat used by receptor

Receptor-specific values used as inputs to this equation are provided in Table 7-6. It was assumed that constituents were 100 percent bioavailable to the receptor, and it also was assumed that each receptor spent 100 percent of its time at the site (that is, an AUF of 1 was assumed). Central tendency estimates (for example, mean or median) for body weight and ingestion rate were used to develop exposure estimates for upper trophic level receptors (Table 7-6). Central tendency estimates for these exposure parameters are more relevant for a screening assessment because these better represent the characteristics of a greater proportion of the individuals in the population.

7.3 Effects Assessment

The purpose here is to establish toxicity screening values that represent conservative thresholds, below which adverse ecological effects from direct or indirect exposure to COPCs in soil or sediment are not expected to occur.

7.3.1 Effects of Direct Exposures

Toxicity screening values protective of terrestrial plants and soil invertebrates in surface soil were selected from one of three primary sources in the following order:

1) USEPA ecological soil screening levels (Eco-SSLs), if available

2) For COPCs without Eco-SSLs, USEPA Region 5 RCRA ecological screening levels (ESLs; USEPA 2003) or USEPA Region 3 Biological Technical Assistance Group (BTAG) values (USEPA 1995)

3) For COPCs without Eco-SSLs, ESLs, or BTAG values, commonly used benchmarks from other sources (e.g., USEPA 2000; Efroymson et al. 1997a, 1997b)

The screening values, and their sources, for COPCs in surface soil are summarized in Table 7-7.

Toxicity screening values protective of aquatic receptors (i.e., benthic invertebrates) in surficial sediment were, first, USEPA Region 5 RCRA ESLs for sediment. If these were not available for a COPC, then USEPA Region 3 BTAG sediment screening values were used. The screening values for analyzed constituents in surface soil and their sources are summarized in Table 7-8.

7.3.2 Effects of Indirect (Food Web) Exposures

Toxicity screening values for ingestion of COPCs by the receptor species were obtained from the literature. Toxicological information for wildlife species most closely related to the receptor species was used, where available, but was supplemented by laboratory studies of non-wildlife surrogate species (such as laboratory mice) where necessary. Preference was

given to toxicity studies involving long-term (chronic, greater than 90 day) exposures. Survival, growth, and reproduction were emphasized as toxicological endpoints because these are the most relevant to maintaining viable populations and are generally the most studied chronic toxicological endpoints for ecological receptors. If several chronic toxicological studies were available in the literature, the most appropriate study was selected for each receptor species based upon study design, study methodology, study duration, study endpoint, and test species. Toxicity screening values for ingestion were chronic no observed adverse effect level (NOAEL) and chronic lowest adverse effect level (LOAEL). Applicable uncertainty factors shown in Table 7-9 were applied to derive these screening values, where necessary. These screening values for mammals and birds are summarized in Tables 7-10 and 7-11, respectively.

7.4 Risk Characterization

An HQ methodology was used to characterize the potential for adverse effects in assessment endpoints from direct and indirect exposure to COPCs in surficial soils and sediment and to identify COPCs. In this method, surface soil and surface sediment EPCs are divided by their corresponding toxicity screening values to derive an estimate of the potential for an adverse effect. HQs exceeding 1.0 indicate the potential for such an effect because the COPC concentration (EPC) is above the toxicity screening value. However, because EPCs and toxicity screening values were both derived using intentionally conservative assumptions, an HQ greater than 1.0 does not necessarily indicate that adverse effects are actually occurring or even very likely. Rather, an HQ greater than 1 identifies a COPC-exposure pathway-receptor combination requiring further evaluation. Conversely, HQs less than 1.0 indicate, with high confidence, that adverse effects are very unlikely (USEPA 1998). Even though HQs were calculated for detected and undetected COPCs, only HQs for detected COPCs were considered for identifying COPCs in order to focus on those chemicals that are both present and potentially significant with respect to adverse effects. A COPC detected above its toxicity screening value (HQ greater than 1.0) in any samples was identified as a COPEC.

7.5 Ecological Screening Results

7.5.1 Direct Exposures

All sample-specific concentration data from ecologically-relevant sites were compared to toxicity screening values with the following detected COPCs identified as COPECs:

- SWMU 17 Surface Sediment: (Table 7-12): Two metals (arsenic and selenium) and one SVOC (acenaphthylene)
- SWMU 17 Surface Soil (Table 7-13): Two metals (chromium and selenium)
- SWMU 18 Surface Sediment (Table 7-14): Three metals (arsenic, chromium and selenium) and 13 PAH constituents
- SWMU 19 Surface Soil (Table 7-15): One metal (chromium)
- SWMU 29 Surface Soil (Table 7-16): Two metals (chromium and selenium)

7.5.2 Indirect (Food Web) Exposures

Constituents retained as COPCs based on direct exposures were further evaluated for indirect effects via receptor-specific food web models using maximum COPC EPCs from each SWMU. Calculated HQs are provided in Tables 7-17 through 7-21 and summarized as follows:

- SWMU 17 Surface Sediment (Table 7-17): Based upon comparison to NOAEL and LOAEL, all HQs were less than 1 for each COPC/exposure scenario combination.
- SWMU 17 Surface Soil (Table 7-18): Based upon comparison to NOAEL, the short-tailed shrew exposure scenario for selenium resulted in HQs greater than 1. ,However, comparison the LOAEL resulted in an HQ less than 1.
- SWMU 18 Surface Sediment (Table 7-19): Based upon comparison to NOAEL and LOAEL, all HQs were less than 1 for each COPC/exposure scenario combination.
- SWMU 19 Surface Soil (Table 7-20): Based upon comparison to NOAEL and LOAEL, all HQs were less than 1 for each COPC/exposure scenario combination.
- SWMU 29 Surface Soil (Table 7-21): Based upon comparison to NOAEL and, LOAEL, all HQs for chromium were less than 1. Based upon comparison to NOAELs, the short-tailed shrew had HQs greater than 1 for selenium. However, comparison the LOAEL resulted in an HQ less than 1.

7.6 Ecological Screening Assessment Conclusions

As summarized in Table 7-22, metals were identified as COPCs in surface soil based on direct exposures at SWMUs 17, 19, and 29. Selenium was identified as a COPEC in surface soil based on indirect (food web) exposures at SWMUs 17 and 29. However, habitat within these SWMUs is too sparse and of too low quality to support viable terrestrial populations. In addition, LOAELs for all surface soil exposure scenarios resulted in HQs less than 1 for all terrestrial receptors. It is thus unlikely that any terrestrial receptors would experience adverse ecological effects within any SWMU evaluated.

Also as summarized in Table 7-22, metals and certain PAHs were identified as COPCs in surface sediment based on direct exposures at SWMUs 17 and 18. However, these channelized drainage ditches present poor quality aquatic habitat (i.e., predominantly silt, clay, and sand substrate; transient flow regimes) that is unlikely to support viable benthic invertebrate or fish communities. In addition, all indirect (food web) exposures resulted in HQs less than 1. It is therefore unlikely that aquatic receptors, or those receptors that prey on them, would experience adverse ecological effects within any SWMUs evaluated.

In the overall context of ecological conditions at the various SWMUs evaluated, it does not appear that the identified COPCs could, in fact, pose a threat to terrestrial or aquatic assessment endpoints. This suggests that these COPCs should neither be retained nor subjected to further, more detailed, risk assessment activities.

SECTION 8

Conclusions

This section presents the conclusions reached based on the results of the sampling and analytical work, and subsequent evaluations.

Both DQOs were met for the RFI. The DQO to determine the facility wide groundwater flow direction and shallow (to bedrock) subsurface stratigraphy was satisfied based on the information from the installation of 40 borings and the 7 wells. The subsurface stratigraphy is clay and silt overlying sand and gravel, and the bedrock encountered in the deep borings was shale. Shallow groundwater is encountered at approximately 20 feet bgs and flows through a sand and gravel aquifer from northwest to southeast toward the Ohio River.

The DQO to determine whether chemicals in soil and sediment exist at concentrations greater than background and risk-based screening levels protective of potential exposure pathways at each SWMU and AOC was satisfied. Sampling and analytical results, comparison of the soil data to appropriately conservative screening levels, and results of the SLHHRA and SLERA show:

- Although arsenic was detected across the site at levels exceeding RSLs, it was not identified as a COPC because it is not a site-related constituent and the concentrations were close to established background values. Further, the SLHRRA determined that arsenic does not pose a risk above target levels and thus is not of concern.
- The SLHHRA and SLERA results demonstrate that none of the other COPCs are present at levels which could pose risks above the target levels. There are no COPCs that need to be carried forward for subsequent phases of investigation based on the results of the SLHHRA and ecological risk screening.
- Ethylbenzene and 1-1 biphenyl were detected at SWMU 24 at 13-15 feet bgs at concentrations that exceeded risk-based screening criteria, but were not considered in the human health or ecological evaluations because of the depth of the boring.

Exceedances of the conservative SSLs protective of groundwater have been observed in soil at SWMU 1, SWMU 15, SWMU 17, SWMU 24, SWMU 25-28, and AOC D, and in the sediment at t SWMU 17 and 18. The data and site conditions will be further evaluated for these areas, and if appropriate, additional soil and/or groundwater investigation will be performed in the Phase 2 RFI. Data quality objectives for the Phase 2 RFI will be developed to determine whether the COPCs identified based on the SSLs are present in groundwater at concentrations which could pose an unacceptable risk to human or ecological receptors.

Therefore, based on the results of the investigation, no further investigation is proposed for the remaining SWMUs (SWMU 11, SWMU 12, SWMU 19, and SWMU 29).

SECTION 9

References

A.T. Kearney. 1989. *Preliminary Review, Visual Site Inspection Report*.

ATSDR. 1993a. *Toxicological profile for arsenic*. April (updated August 2007). http://www.atsdr.cdc.gov/toxprofiles/tp.asp?id=22&tid=3

ATSDR. 1995. *Toxicological profile for Polycyclic Aromatic Hydrocarbons*. http://www.atsdr.cdc.gov/toxpro2.html. August. PB/2000/108027.

Bechtel Jacobs. 1998a. *Empirical models for the uptake of inorganic chemicals from soil by plants.* Prepared for U.S. Department of Energy. BJC/OR-133. September.

Bellrose, F.C. 1980. *Ducks, geese, and swans of North America, third edition.* Stackpole Books, Harrisburg, PA. 540 pp.

Beyer, W.N. and C. Stafford. 1993. Survey and evaluation of contaminants in earthworms and in soil derived from dredged material at confined disposal facilities in the Great Lakes Region. *Environmental Monitoring and Assessment.* 24:151-165.

CH2M HILL. 2011. *Final RFI Work Plan, Dow Hanging Rock Facility, Ironton, Ohio.* USEPA ID OHD 039 128 913. November.

Dow Chemical Company, The. 2007. *Responses to Information Request for SWMUs and AOCs, Hanging Rock Plant, Ironton, Ohio.* June 18.

Dunning, J.B., Jr. (editor). 1993. *CRC handbook of avian body masses.* CRC Press, Boca Raton, FL. 371 pp.

Efroymson, R.A., G.W. Suter, B.E. Sample, and D.S. Jones. 1997a. Preliminary Remediation Goals for Ecological Endpoints. ES/ER/TM-162/R2, Environmental Restoration Program, Oak Ridge National Laboratory, Oak Ridge, TN.

Efroymson, R.A., M.E. Will, and G.W. Suter. 1997b. Toxicological Benchmarks for Screening Contaminants of Potential Concern for Effects on Soil and Litter Invertebrates and Heterotrophic Processes: 1997 Revision. ES/ER/TM-126/R2, Environmental Restoration Program, Oak Ridge National Laboratory, Oak Ridge, TN.

Efroymson, R.A., M.E. Will, G.W. Suter, and A.C. Wooten. 1997c. Toxicological Benchmarks for Screening Contaminants of Potential Concern for Effects on Terrestrial Plants: 1997 Revision. ES/ER/TM-85/R3, Environmental Restoration Program, Oak Ridge National Laboratory, Oak Ridge, TN.

Krantzberg, G. and D. Boyd. 1992. The biological significance of contaminants in sediment from Hamilton Harbour, Lake Ontario. *Environmental Toxicology and Chemistry.* 11:1527-1540.

Levey, D.J. and W.H. Karasov. 1989. Digestive responses of temperate birds switched to fruit or insect diets. *Auk.* 106:675-686.

Martin, A.C., H.S. Zim, and A.L. Nelson. 1951. *American wildlife and plants: a guide to wildlife food habits.* Dover Publications, Inc. New York, NY. 500 pp.

Maruya, K.A., R.W. Risebrough, and A.J. Horne. 1997. The bioaccumulation of polynuclear aromatic hydrocarbons by benthic invertebrates in an intertidal marsh. *Environmental Toxicology and Chemistry.* 16:1087-1097.

Ohio Department of Natural Resources (ODNR). 2005. Surficial Geology of Ohio.

Ohio Department of Natural Resources (ODNR). 2006. Bedrock Geologic Map of Ohio.

Ohio Department of Natural Resources (ODNR). 2011. Groundwater Mapping and Technical Resources. (http://www.dnr.state.oh.us/water/maptechs/wellogs). Accessed January 26.

Ohio Environmental Protection Agency (Ohio EPA). 1993. *Closure Plan Review Guidance for RCRA Facilities.*

Ohio Environmental Protection Agency (Ohio EPA). 2008. *Ecological Risk Assessment Guidance Document.* DERR-00-RR-031. Division of Emergency and Remedial Response.

Ohio Environmental Protection Agency (Ohio EPA). 2009. Closure Plan Review Guidance. Accessed via the internet at http://epa.ohio.gov/portal/32/pdf/2008CPRG.pdf.

Ecological Risk Assessment Guidance Document. DERR-00-RR-031. Division of Emergency and Remedial Response.

Pascoe, G.A., R.J. Blanchet, and G. Linder. 1996. Food chain analysis of exposures and risks to wildlife at a metals-contaminated wetland. *Archives of Environmental Contamination and Toxicology.* 30:306-318.

Radian International LLC. 1997. *Closure of the Former Drum Storage Area, Hanging Rock Plant, Ironton, Ohio.*

Rigdon, R.H., and J. Neal. 1963. *Fluorescence of chickens and eggs following the feeding of benzpyrene crystals*. Texas Reports on Biology and Medicine 21(4):558-566.

Sample, B.E., and G.W. Suter II, 1994. Estimated Exposure of Terrestrial Wildlife to Contaminants. ES/ER/TM-125. Environmental Sciences Division, Oak Ridge National Laboratory, Oak Ridge, TN.

Sample, B.E., D.M. Opresko, and G.W. Suter II, 1996. Toxicological Benchmarks for Wildlife: 1996 Revision. ES/ER/TM-86/R3. Risk Assessment Program, Health Sciences Research Division, Oak Ridge, TN.

Sample, B.E., M.S. Aplin, R.A. Efroymson, G.W. Suter II, and C.J.E. Welsh. 1997. *Methods and tools for estimation of the exposure of terrestrial wildlife to contaminants.* Environmental Sciences Division, Oak Ridge National Laboratory. ORNL/TM-13391.

Sample, B.E., J.J. Beauchamp, R.A. Efroymson, G.W. Suter II, and T.L. Ashwood. 1998a. Development and validation of bioaccumulation models for earthworms. Environmental Restoration Division, ORNL Environmental Restoration Program. ES/ER/TM-220.

Sample, B.E., J.J. Beauchamp, R.A. Efroymson, and G.W. Suter II. 1998b. Development and validation of bioaccumulation models for small mammals. Environmental Restoration Division, ORNL Environmental Restoration Program. ES/ER/TM-219.

Schmidt, James J. 1995. Groundwater Resources of Lawrence and Gallia Counties.

States, J.B., P.T. Hang, T.B. Shoemaker, L.W. Reed, and E.B. Reed. 1978. A System Approach to Ecological Baseline Studies. FQS/DBS-78/21. United States Fish and Wildlife Service, Washington, DC.

Silva, M. and J.A. Downing. 1995. CRC handbook of mammalian body masses. CRC Press, Boca Raton, FL. 359 pp.

Suter, G. W. II. 1989. "Ecological Endpoints." Chapter 2 in W. Warren-Hicks, B. R. Parkhurst, and S. S. Baker, Jr. (ed.). *Ecological Assessment of Hazardous Waste Sites: A Field and Laboratory Reference.* EPA/600/3-89/013.

Suter, G. W. II. 1993. *Ecological Risk Assessment.* Lewis Publishers, Chelsea, MI. 538 pp.

Tetra Tech. 2000. *Preliminary Assessment, Visual Site Inspection.*

Tomlinson, R.E., D.D. Dolton, R.R. George, and R.R. Mirarchi. 1994. Mourning Dove. Pages 1-26 in T.C. Tacha and C.E. Braun (eds). *Migratory shore and upland game bird management in North America*. Int. Assoc. Fish and Wildlife Agencies, Washington, D.C.

Travis, C.C., and A.D. Arms. 1988. "Bioconcentration of Organics in Beef, Milk and Vegetation." Envir. Sci. Technol. 22(3):271-274.

U.S. Department of Agriculture, Natural Resources Conservation Service. 2011. Web Soil Survey. http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx. Accessed January 20.

U.S. Environmental Protection Agency (USEPA). 1986. *Guidelines for Health Risk Assessment of Chemical Mixtures*. Federal Register Vol. 51 34014-34041. September 24, 1986.

U.S. Environmental Protection Agency (USEPA). 1989. *Risk Assessment Guidance for Superfund, Volume 1, Human Health Evaluation Manual (Part A)*. USUSEPA/540/1-89/002.

U.S. Environmental Protection Agency (USEPA). 1991. Risk Assessment Guidance for Superfund, Volume 1, Human Health Evaluation Manual, Part B: "Development of Risk-based Preliminary Remedial Goals." Office of Solid Waste and Emergency Response. OSWER Directive 9285.7-01B. December 13.

U.S. Environmental Protection Agency (USEPA). 1992. Framework for Ecological Risk Assessment. EPA/630/R-92/001.

U.S. Environmental Protection Agency (USEPA). 1993. Wildlife Exposure Factors Handbook, Volume I of II. EPA/600/R-93/187a and 187b. Office of Research and Development, Washington, DC.

U.S. Environmental Protection Agency (USEPA). 1995. Revised Region III BTAG screening levels. Memorandum from R.S. Davis to Users. August 9.

U.S. Environmental Protection Agency (USEPA). 1996. Soil Screening Guidance: User Guide. OSWER 9355.4-23. July.

U.S. Environmental Protection Agency (USEPA). 1997. *Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments*. Interim Final. EPA/540/R-97/006.

U.S. Environmental Protection Agency (USEPA). 1998. *Guidelines for Ecological Risk Assessment.* EPA/630/R-95/002F.

U.S. Environmental Protection Agency (USEPA). 1999. *Screening level ecological risk assessment protocol for hazardous waste combustion facilities.* Peer Review Draft. EPA/530/D-99/001. August.

U.S. Environmental Protection Agency (USEPA). 2000. *Bioaccumulation testing and interpretation for the purpose of sediment quality assessment - status and needs.* EPA/823/R-00/001.

U.S. Environmental Protection Agency (USEPA). 2003. *RCRA Ecological Screening Levels*. USEPA Region 5, Chicago. http://www.epa.gov/reg5rcra/ca/edql.htm. August.

U.S. Environmental Protection Agency (USEPA). 2005a. *Guidance for Developing Ecological Soil Screening Levels*. OSWER 9285.7-55. February.

U.S. Environmental Protection Agency (USEPA). 2005b. Ecological Soil Screening Levels for Antimony. February. Available at: http://www.epa.gov/ecotox/ecossl/

U.S. Environmental Protection Agency (USEPA). 2005c. Ecological Soil Screening Levels for Arsenic. March. Available at: http://www.epa.gov/ecotox/ecossl/

U.S. Environmental Protection Agency (USEPA). 2005d. Ecological Soil Screening Levels for Barium. February. Available at: http://www.epa.gov/ecotox/ecossl/

U.S. Environmental Protection Agency (USEPA). 2010. *Final May 2006/Modified August 2010, OHD 039 128 913) RCRA Permit*.

U.S. Environmental Protection Agency (USEPA). 2011. *Regional Screening Levels for Chemical Contaminants at Superfund Sites*. November.

Wentsel, R.S., T.W. Lapoint, M.Simini. 1996. Tri-Service Procedural Guidelines for Ecological Risk Assessments, Volume I. U.S. Army; The Inst. Of Wildl. And EBA, Inc.

Tables

TABLE 3-1
Monitoring Well Construction Details
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

		Survey				From Boring Log						Water Level Data	
												1/18/2012	
Well ID	**Date Installed**	**Top of Casing (TOC) Elevation**	**Top of Ground (TOG) Elevation**	**Latitude**	**Longitude**	**Top of Screen (ft bgs)**	**Bottom of Screen (ft bgs)**	**Screen Length (ft)**	**Total Depth of Borehole When Drilled (ft bgs)**	**Well Diameter (inches)**	**Surface Completion**	**Water level (ft btoc)**	**Elevation**
MW-01	5-Jan-12	553.97	551.36	38.58006279	-82.79379579	18.11	28.11	10	84	2	**FL**	25.97	528.00
MW-02	6-Jan-12	554.46	551.86	38.57882295	-82.79203719	20	30	10	30	2	**FL**	26.53	527.93
MW-03	6-Jan-12	556.10	553.66	38.57762460	-82.78843575	24.6	34.6	10	35	2	**FL**	28.38	527.72
MW-04	10-Jan-12	552.77	549.93	38.57594082	-82.79319582	22	32	10	35	2	**FL**	24.96	527.81
MW-05	7-Jan-12	548.66	548.96	38.57431267	-82.79063874	24	34	10	79	2	**S**	21.03	527.63
MW-06	10-Jan-12	552.03	549.43	38.57262410	-82.79085576	19	29	10	35	2	**FL**	24.48	527.55
MW-07	9-Jan-12	556.59	553.73	38.57057112	-82.78870905	24	34	10	82	2	**FL**	29.11	527.48

Notes:
bgs = Below ground surface
btoc = Below top of casing
FL = Flush mount cover
ft = Feet
S = Stick up cover
TOC = Top of casing
TOG = Top of ground

TABLE 5-1
SWMU 1 Soil Data
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Analyte	Industrial RSL[1]	Protection of Groundwater SSLs[2]	Location	S01-SS01			S01-SS02				S01-SS03				S01-SS04			
			Sample ID	S01-SS01-0002-120911	S01-SS01-0305-120911	S01-SS01-0810-120911	S01-SS02-0002-120911	S01-SS02-0305-120911	S01-SS02-0810-120911	S01-SS02-2123-120911	S01-SS03-0002-121211	S01-SS03-0305-121211	S01-SS03-0810-121211	S01-SS03-1315-121211	S01-SS04-0002-121211	HGR-121211-FD01	S01-SS04-0305-121211	S01-SS04-0810-121211
			Sample Depth (ft)	0 - 2	3 - 5	8 - 10	0 - 2	3 - 5	8 - 10	21 - 23	0 - 2	3 - 5	8 - 10	13 - 15	0 - 2	3 - 5	3 - 5	8 - 10
			Sample Date	12/9/2011	12/9/2011	12/9/2011	12/9/2011	12/9/2011	12/9/2011	12/9/2011	12/12/2011	12/12/2011	12/12/2011	12/12/2011	12/12/2011	12/12/2011	12/12/2011	12/12/2011
			UNITS															
VOC (ug/kg)																		
1,1,1,2-TETRACHLOROETHANE	9,300	3.8	ug/kg	< 1	< 1	< 1	< 44	< 51	< 54	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,1-TRICHLOROETHANE	640,000	1,400	ug/kg	< 1	< 1	< 1	< 44	< 51	< 54	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2,2-TETRACHLOROETHANE	2,800	0.52	ug/kg	< 1	< 1	< 1	< 44	< 51	< 54	< 1	**R**	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2-TRICHLOROETHANE	680	32	ug/kg	< 1	< 1	< 1	< 44	< 51	< 54	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1-DICHLOROETHANE	17,000	13.6	ug/kg	< 1	< 1	< 1	< 44	< 51	< 54	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1-DICHLOROETHENE	110,000	50	ug/kg	< 1	< 1	< 1	< 44	< 51	< 54	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1-DICHLOROPROPENE	110,000	50	ug/kg	< 1	< 1	< 1	< 44	< 51	< 54	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2,3-TRICHLOROBENZENE	49,000	300	ug/kg	< 1	< 1	< 1	< 44	< 51	< 54	< 1	**R**	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2,3-TRICHLOROPROPANE	95	0.0056	ug/kg	< 1	< 1	< 1	< 44	< 51	< 54	< 1	**R**	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2,4-TRICHLOROBENZENE	27,000	4,000	ug/kg	< 1	< 1	< 1	< 44	< 51	< 54	< 1	**R**	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2,4-TRIMETHYLBENZENE	26,000	420	ug/kg	< 1	< 1	< 1	< 44	< 51	< 54	< 1	**R**	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2-DIBROMO-3-CHLOROPROPANE	69	1.72	ug/kg	< 2	< 2	< 2	< 89	< 100	< 110	< 2	**R**	< 2	< 2	< 2	< 2	< 2	< 2	< 2
1,2-DIBROMOETHANE	170	0.28	ug/kg	< 1	< 1	< 1	< 44	< 51	< 54	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2-DICHLOROETHANE	2,200	28	ug/kg	< 1	< 1	< 1	< 44	< 51	< 54	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2-DICHLOROPROPANE	4,700	34	ug/kg	< 1	< 1	< 1	< 44	< 51	< 54	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,3,5-TRIMETHYLBENZENE	182,000	2,400	ug/kg	< 1	< 1	< 1	< 44	< 51	< 54	< 1	**R**	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,3-DICHLOROPROPANE	1,490,000	1,980	ug/kg	< 1	< 1	< 1	< 44	< 51	< 54	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2,2-DICHLOROPROPANE	4,700	34	ug/kg	< 1	< 1	< 1	< 44	< 51	< 54	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2-BUTANONE	20,000,000	20,000	ug/kg	**10 J**	< 4	< 4	< 180	< 200	< 220	**9 J**	< 4	< 4	< 4	**7 J**	**10 J**	< 4	**4 J**	**8 J**
2-CHLOROTOLUENE	907,000	3,400	ug/kg	< 1	< 1	< 1	< 44	< 51	< 54	< 1	**R**	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2-HEXANONE	140,000	158	ug/kg	< 3	< 3	< 3	< 130	< 150	< 160	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3
4-CHLOROTOLUENE	253,000	3,600	ug/kg	< 1	< 1	< 1	< 44	< 51	< 54	< 1	**R**	< 1	< 1	< 1	< 1	< 1	< 1	< 1
4-METHYL-2-PENTANONE	3,360,000	4,600	ug/kg	< 3	< 3	< 3	< 130	< 150	< 160	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3
ACETONE	63,000,000	48,000	ug/kg	**43 J**	**38 J**	**20 J**	< 310	< 360	< 380	**40 J**	**98 J**	**19 J**	**28 J**	**43 J**	**58 J**	**37 J**	**40 J**	**64 J**
BENZENE	5,400	52	ug/kg	**2 J**	**2 J**	< 0.5	< 22	**55 J**	160 J	< 0.5	**0.6 J**	< 0.5	< 0.5	< 0.6	**2 J**	< 0.5	< 0.5	< 0.5
BROMOBENZENE	180,000	720	ug/kg	< 1	< 1	< 1	**96 J**	< 51	< 54	< 1	**R**	< 1	< 1	< 1	**4 J**	< 1	< 1	< 1
BROMOCHLOROMETHANE	68,000	420	ug/kg	< 1	< 1	< 1	< 44	< 51	< 54	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMODICHLOROMETHANE	1,400	440	ug/kg	< 1	< 1	< 1	< 44	< 51	< 54	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOFORM	220,000	420	ug/kg	< 1	**3 J**	**37**	< 44	**120 J**	130 J	< 1	**R**	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	3,200	36	ug/kg	< 2	< 2	< 2	< 89	< 100	< 110	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
CARBON DISULFIDE	370,000	4,200	ug/kg	**1 J**	< 1	< 1	< 44	< 51	< 54	< 1	< 1	< 1	< 1	< 1	**3 J**	< 1	< 1	< 1
CARBON TETRACHLORIDE	3,000	38	ug/kg	< 1	< 1	< 1	< 44	< 51	< 54	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROBENZENE	140,000	1360	ug/kg	< 1	< 1	< 1	< 44	< 51	< 54	< 1	< 1	< 1	< 1	< 1	**3 J**	< 1	< 1	< 1
CHLOROETHANE	2,120,000	118,000	ug/kg	< 2	< 2	< 2	< 89	< 100	< 110	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
CHLOROFORM	1,500	440	ug/kg	< 1	< 1	< 1	< 44	< 51	< 54	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	50,000	980	ug/kg	< 2	< 2	< 2	< 89	< 100	< 110	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
CIS-1,2-DICHLOROETHENE	200,000	420	ug/kg	**5 J**	**6**	< 1	< 44	< 51	< 54	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CIS-1,3-DICHLOROPROPENE	8,300	3	ug/kg	< 1	< 1	< 1	< 44	< 51	< 54	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CYCLOHEXANE	117,000	260,000	ug/kg	< 1	< 1	< 1	**53 J**	< 51	< 54	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
DIBROMOCHLOROMETHANE	3,300	420	ug/kg	< 1	< 1	< 1	< 44	< 51	< 54	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
DIBROMOMETHANE	11,000	38	ug/kg	< 1	< 1	< 1	< 44	< 51	< 54	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
DICHLORODIFLUOROMETHANE	40,000	6,000	ug/kg	< 2	< 2	< 2	< 89	< 100	< 110	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
ETHYLBENZENE	27,000	15,600	ug/kg	**2 J**	< 1	< 1	**720 J**	**63 J**	260 J	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
FREON 113	910,000	2,600,000	ug/kg	< 2	< 2	< 2	< 89	< 100	< 110	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
HEXACHLOROBUTADIENE	22,000	10	ug/kg	< 2	< 2	< 2	< 89	< 100	< 110	< 2	**R**	< 2	< 2	< 2	< 2	< 2	< 2	< 2
ISOPROPYLBENZENE	268,000	12,800	ug/kg	< 1	**2 J**	< 1	**250 J**	< 51	< 54	< 1	< 1	< 1	< 1	< 1	**2 J**	< 1	< 1	< 1
M+P-XYLENE	250,000	3,600	ug/kg	< 1	< 1	< 1	< 44	< 51	< 54	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
METHYL ACETATE	29,000,000	64,000	ug/kg	< 2	< 2	< 2	**150 J**	< 100	< 110	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
METHYL TERTIARY BUTYL ETHER	220,000	56	ug/kg	< 0.6	< 0.5	< 0.5	< 22	< 26	< 27	< 0.5	< 0.5	< 0.5	< 0.5	< 0.6	< 0.5	< 0.5	< 0.5	< 0.5
METHYLCYCLOHEXANE	--	NA	- -	< 1	< 1	< 1	< 44	< 51	< 54	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
METHYLENE CHLORIDE	53,000	26	ug/kg	< 2	< 2	< 2	< 89	< 100	< 110	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
N-BUTYLBENZENE	108,000	50,000	ug/kg	< 1	< 1	< 1	< 44	< 51	< 54	< 1	**R**	< 1	< 1	< 1	< 1	< 1	< 1	< 1
N-PROPYLBENZENE	264,000	19,800	ug/kg	< 1	< 1	< 1	**100 J**	< 51	< 54	< 1	**R**	< 1	< 1	< 1	< 1	< 1	< 1	< 1
NAPHTHALENE	18,000	9.4	ug/kg	< 1	< 1	< 1	< 44	< 51	< 54	< 1	**R**	< 1	< 1	< 1	< 1	< 1	< 1	< 1
O-XYLENE	300,000	3,800	ug/kg	< 1	< 1	< 1	**45 J**	< 51	< 54	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
P-ISOPROPYLTOLUENE	268,000	12,800	ug/kg	< 1	< 1	< 1	< 44	< 51	< 54	< 1	**R**	< 1	< 1	< 1	< 1	< 1	< 1	< 1
SEC-BUTYLBENZENE	268,000	12,800	ug/kg	< 1	< 1	< 1	**67 J**	< 51	< 54	< 1	**R**	< 1	< 1	< 1	**2 J**	< 1	< 1	< 1
STYRENE	867,000	2,200	ug/kg	< 1	< 1	< 1	< 44	< 51	< 54	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TERT-BUTYLBENZENE	268,000	12,800	ug/kg	< 1	< 1	< 1	< 44	< 51	< 54	< 1	**R**	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TETRACHLOROETHENE	2,600	46	ug/kg	**1 J**	**12**	**6**	**1600 J**	**55 J**	320 J	**1 J**	**1 J**	**17**	**4 J**	**3 J**	< 1	**1 J**	**1 J**	**4 J**
TOLUENE	818,000	13,800	ug/kg	**2 J**	**2 J**	< 1	< 44	< 51	61 J	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1,2-DICHLOROETHENE	69,000	580	ug/kg	**2 J**	< 1	< 1	< 44	< 51	< 54	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1,3-DICHLOROPROPENE	8,300	3	ug/kg	< 1	< 1	< 1	< 44	< 51	< 54	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROETHENE	2,000	36	ug/kg	< 1	**2 J**	< 1	**68 J**	< 51	< 54	< 1	**3 J**	**2 J**	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	340,000	13,800	ug/kg	< 2	< 2	< 2	< 89	< 100	< 110	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
VINYL ACETATE	410,000	1,740	ug/kg	< 2	< 2	< 2	< 89	< 100	< 110	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
VINYL CHLORIDE	1,700	13.8	ug/kg	< 1	< 1	< 1	< 44	< 51	< 54	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
SVOC (ug/kg)																		
1,1'-BIPHENYL	21,000	174	ug/kg	**370**	< 21	< 20	**200**	**1800**	3800	**56**	**25 J**	< 20	< 20	< 18	**31 J**	< 20	< 20	< 21
1,2-DICHLOROBENZENE	376,000	11,600	ug/kg	< 1	< 1	< 1	< 44	< 51	< 54	< 1	**R**	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,3-DICHLOROBENZENE	12,000	1,440	ug/kg	< 1	< 1	< 1	< 44	< 51	< 54	< 1	**R**	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,4-DICHLOROBENZENE	12,000	1,440	ug/kg	< 1	< 1	< 1	< 44	< 51	< 54	< 1	**R**	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,4-DIOXANE	17,000	2.8	ug/kg	< 580	< 120	< 120	< 590	< 120	< 120	< 110	< 120	< 120	< 120	< 110	< 120	< 120	< 120	< 120
2,4,5-TRICHLOROPHENOL	6,200,000	66,000	ug/kg	< 97	< 21	< 20	< 99	< 20	< 20	< 18	< 19	< 20	< 20	< 18	< 20	< 20	< 20	< 21
2,4,6-TRICHLOROPHENOL	62,000	260	ug/kg	< 97	< 21	< 20	< 99	< 20	< 20	< 18	< 19	< 20	< 20	< 18	< 20	< 20	< 20	< 21
2,4-DICHLOROPHENOL	180,000	820	ug/kg	< 97	< 21	< 20	< 99	< 20	< 20	< 18	< 19	< 20	< 20	< 18	< 20	< 20	< 20	< 21
2,4-DIMETHYLPHENOL	1,200,000	6,400	ug/kg	< 97	< 21	< 20	< 99	< 20	< 20	< 18	< 19	< 20	< 20	< 18	< 20	< 20	< 20	< 21
2,4-DINITROPHENOL	120,000	680	ug/kg	< 1900	< 410	< 400	< 2000	< 410	< 400	< 350	< 390	< 410	< 400	< 350	< 410	< 410	< 410	< 420
2,4-DINITROTOLUENE	5,500	5.6	ug/kg	< 390	< 82	< 81	< 390	< 82	< 80	< 70	< 77	< 81	< 80	< 70	< 81	< 81	< 81	< 83
2,6-DINITROTOLUENE	62,000	400	ug/kg	< 97	< 21	< 20	< 99	< 20	< 20	< 18	< 19	< 20	< 20	< 18	< 20	< 20	< 20	< 21
2-CHLORONAPHTHALENE	175,000	58,000	ug/kg	< 41	< 9	< 8	< 41	< 9	< 8	< 7	< 8	< 9	< 8	< 7	< 9	< 9	< 9	< 9
2-CHLOROPHENOL	510,000	1,140	ug/kg	< 97	< 21	< 20	< 99	< 20	< 20	< 18	< 19	< 20	< 20	< 18	< 20	< 20	< 20	< 21
2-METHYLNAPHTHALENE	368,000	2,800	ug/kg	**22 J**	< 4	< 4	< 20	< 4	< 4	**5 J**	**4 J**	< 4	< 4	< 4	< 4	< 4	< 4	< 4
2-METHYLPHENOL	3,100,000	11,600	ug/kg	< 97	< 21	< 20	< 99	< 20	< 20	< 18	< 19	< 20	< 20	< 18	< 20	< 20	< 20	< 21
2-NITROANILINE	600,000	1,240	ug/kg	< 97	< 21	< 20	< 99	< 20	< 20	< 18	< 19	< 20	< 20	< 18	< 20	< 20	< 20	< 21
2-NITROPHENOL	510,000	1,140	ug/kg	< 97	< 21	< 20	< 99	< 20	< 20	< 18	< 19	< 20	< 20	< 18	< 20	< 20	< 20	< 21
3,3'-DICHLOROBENZIDINE	3,800	14.2	ug/kg	< 580	< 120	< 120	< 590	< 120	< 120	< 110	< 120	< 120	< 120	< 110	< 120	< 120	< 120	< 120
3-NITROANILINE	600,000	1,240	ug/kg	< 390	< 82	< 81	< 390	**100 J**	< 80	< 70	< 77	< 81	< 80	< 70	< 81	< 81	< 81	< 83
4,6-DINITRO-2-METHYLPHENOL	4,900	40	ug/kg	< 970	< 210	< 200	< 990	< 200	< 200	< 180	< 190	< 200	< 200	< 180	< 200	< 200	< 200	< 210
4-BROMOPHENYL-PHENYLETHER	--	NA	- -	< 97	< 21	< 20	< 99	< 20	< 20	< 18	< 19	< 20	< 20	< 18	< 20	< 20	< 20	< 21
4-CHLORO-3-METHYLPHENOL	6,200,000	26,000	ug/kg	< 97	< 21	< 20	< 99	< 20	< 20	< 18	< 19	< 20	< 20	< 18	< 20	< 20	< 20	< 21
4-CHLOROANILINE	8,600	2.6	ug/kg	< 97	< 21	< 20	< 99	< 20	< 20	< 18	< 19	< 20	< 20	< 18	< 20	< 20	< 20	< 21
4-CHLOROPHENYL-PHENYLETHER	--	NA	- -	< 97	< 21	< 20	< 99	< 20	< 20	< 18	< 19	< 20	< 20	< 18	< 20	< 20	< 20	< 21

TABLE 5-1
SWMU 1 Soil Data
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Analyte	Industrial RSL[1]	Protection of Groundwater SSLs[2]	Location	S01-SS01			S01-SS02				S01-SS03				S01-SS04			
			Sample ID	S01-SS01-0002-120911	S01-SS01-0305-120911	S01-SS01-0810-120911	S01-SS02-0002-120911	S01-SS02-0305-120911	S01-SS02-0810-120911	S01-SS02-2123-120911	S01-SS03-0002-121211	S01-SS03-0305-121211	S01-SS03-0810-121211	S01-SS03-1315-121211	S01-SS04-0002-121211	HGR-121211-FD01	S01-SS04-0305-121211	S01-SS04-0810-121211
			Sample Depth (ft)	0 - 2	3 - 5	8 - 10	0 - 2	3 - 5	8 - 10	21 - 23	0 - 2	3 - 5	8 - 10	13 - 15	0 - 2	3 - 5	3 - 5	8 - 10
			Sample Date	12/9/2011	12/9/2011	12/9/2011	12/9/2011	12/9/2011	12/9/2011	12/9/2011	12/12/2011	12/12/2011	12/12/2011	12/12/2011	12/12/2011	12/12/2011	12/12/2011	12/12/2011
			UNITS															
4-METHYLPHENOL	310,000	1140	ug/kg	< 97	< 21	< 20	< 99	< 20	< 20	< 18	< 19	< 20	< 20	< 18	< 20	< 20	< 20	< 21
4-NITROANILINE	86,000	28	ug/kg	< 390	< 82	< 81	< 390	< 82	< 80	< 70	< 77	< 81	< 80	< 70	< 81	< 81	< 81	< 83
4-NITROPHENOL	24,000	1.58	ug/kg	< 970	< 210	< 200	< 990	< 200	< 200	< 180	< 190	< 200	< 200	< 180	< 200	< 200	< 200	< 210
ACENAPHTHENE	3,300,000	82,000	ug/kg	**64 J**	< 4	< 4	< 20	< 4	< 4	< 4	**12 J**	< 4	< 4	< 4	< 4	< 4	< 4	< 4
ACENAPHTHYLENE	3,300,000	82,000	ug/kg	< 19	< 4	< 4	< 20	< 4	< 4	< 4	**29**	< 4	< 4	< 4	< 4	< 4	< 4	**4 J**
ANTHRACENE	17,000,000	840,000	ug/kg	**22 J**	< 4	< 4	< 20	< 4	< 4	< 4	**19 J**	< 4	< 4	< 4	< 4	< 4	< 4	< 4
BENZO(A)ANTHRACENE	2,100	200	ug/kg	**69 J**	< 4	< 4	**32 J**	< 4	< 4	< 4	**44**	< 4	< 4	< 4	**10 J**	< 4	< 4	< 4
BENZO(A)PYRENE	210	4,800	ug/kg	**73 J**	< 4	< 4	**45 J**	< 4	< 4	< 4	**49**	< 4	< 4	< 4	**10 J**	< 4	< 4	< 4
BENZO(B)FLUORANTHENE	2,100	700	ug/kg	**100**	< 4	< 4	**74 J**	< 4	< 4	< 4	**63**	< 4	< 4	< 4	**19 J**	< 4	< 4	< 4
BENZO(G,H,I)PERYLENE	1,700,000	190,000	ug/kg	**60 J**	< 4	< 4	**53 J**	< 4	< 4	**4 J**	**39**	< 4	< 4	< 4	**10 J**	< 4	< 4	< 4
BENZO(K)FLUORANTHENE	21,000	7,000	ug/kg	**65 J**	< 4	< 4	**43 J**	< 4	< 4	< 4	**31**	< 4	< 4	< 4	**7 J**	< 4	< 4	< 4
BENZYL ALCOHOL	6,200,000	7,400	ug/kg	< 970	< 210	< 200	< 990	< 200	< 200	< 180	< 190	< 200	< 200	< 180	< 200	< 200	< 200	< 210
BIS(2-CHLOROETHOXY)METHANE	180,000	220	ug/kg	< 97	< 21	< 20	< 99	< 20	< 20	< 18	< 19	< 20	< 20	< 18	< 20	< 20	< 20	< 21
BIS(2-CHLOROETHYL)ETHER	1,000	0.062	ug/kg	< 97	< 21	< 20	< 99	< 20	< 20	< 18	< 19	< 20	< 20	< 18	< 20	< 20	< 20	< 21
BIS(2-ETHYLHEXYL)PHTHALATE	120,000	28,000	ug/kg	< 390	< 82	< 81	< 390	< 82	< 80	< 70	< 77	< 81	< 80	< 70	< 81	< 81	< 81	< 83
BUTYLBENZYLPHTHALATE	910,000	4,000	ug/kg	< 390	< 82	< 81	< 390	< 82	< 80	< 70	< 77	< 81	< 80	< 70	< 81	< 81	< 81	< 83
CARBAZOLE	--	NA	- -	**130 J**	< 21	< 20	< 99	< 20	< 20	< 18	< 19	< 20	< 20	< 18	< 20	< 20	< 20	< 21
CHRYSENE	210,000	22,000	ug/kg	**88 J**	< 4	< 4	**62 J**	< 4	< 4	**4 J**	**55**	< 4	< 4	**4 J**	**16 J**	< 4	< 4	< 4
DI-N-BUTYLPHTHALATE	6,200,000	34,000	ug/kg	< 390	< 82	< 81	< 390	< 82	< 80	< 70	< 77	< 81	< 80	< 70	< 81	< 81	< 81	< 83
DI-N-OCTYLPHTHALATE	--	NA	- -	< 390	< 82	< 81	< 390	< 82	< 80	< 70	< 77	< 81	< 80	< 70	< 81	< 81	< 81	< 83
DIBENZ(A,H)ANTHRACENE	210	220	ug/kg	< 19	< 4	< 4	< 20	< 4	< 4	< 4	**9 J**	< 4	< 4	< 4	< 4	< 4	< 4	< 4
DIBENZOFURAN	100,000	2,200	ug/kg	< 97	< 21	< 20	< 99	< 20	< 20	< 18	< 19	< 20	< 20	< 18	< 20	< 20	< 20	< 21
DIETHYLPHTHALATE	49,000,000	94,000	ug/kg	< 390	< 82	< 81	< 390	< 82	< 80	< 70	< 77	< 81	< 80	< 70	< 81	< 81	< 81	< 83
DIMETHYLPHTHALATE	--	NA	- -	< 390	< 82	< 81	< 390	< 82	< 80	< 70	< 77	< 81	< 80	< 70	< 81	< 81	< 81	< 83
FLUORANTHENE	2,200,000	1,400,000	ug/kg	**160**	< 4	< 4	**43 J**	< 4	< 4	**5 J**	**100**	< 4	< 4	< 4	**29**	< 4	< 4	< 4
FLUORENE	2,200,000	80,000	ug/kg	**52 J**	< 4	< 4	< 20	< 4	< 4	< 4	**7 J**	< 4	< 4	< 4	< 4	< 4	< 4	< 4
HEXACHLOROBENZENE	1,100	260	ug/kg	< 19	< 4	< 4	< 20	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4
HEXACHLOROCYCLOPENTADIENE	370,000	3,200	ug/kg	< 970	< 210	< 200	< 990	< 200	< 200	< 180	< 190	< 200	< 200	< 180	< 200	< 200	< 200	< 210
HEXACHLOROETHANE	43,000	9.6	ug/kg	< 190	< 41	< 40	< 200	< 41	< 40	< 35	< 39	< 41	< 40	< 35	< 41	< 41	< 41	< 42
INDENO(1,2,3-CD)PYRENE	2,100	2,400	ug/kg	**52 J**	< 4	< 4	**42 J**	< 4	< 4	< 4	**34**	< 4	< 4	< 4	**9 J**	< 4	< 4	< 4
ISOPHORONE	1,800,000	440	ug/kg	< 97	< 21	< 20	< 99	< 20	< 20	< 18	< 19	< 20	< 20	< 18	< 20	< 20	< 20	< 21
N-NITROSO-DI-N-PROPYLAMINE	250	0.14	ug/kg	< 97	< 21	< 20	< 99	< 20	< 20	< 18	< 19	< 20	< 20	< 18	< 20	< 20	< 20	< 21
N-NITROSODIPHENYLAMINE	350,000	1,140	ug/kg	< 97	< 21	< 20	< 99	< 20	< 20	< 18	< 19	< 20	< 20	< 18	< 20	< 20	< 20	< 21
NITROBENZENE	24,000	1.58	ug/kg	< 97	< 21	< 20	< 99	< 20	< 20	< 18	< 19	< 20	< 20	< 18	< 20	< 20	< 20	< 21
PENTACHLOROPHENOL	2,700	200	ug/kg	< 190	< 41	< 40	< 200	< 41	< 40	< 35	< 39	< 41	< 40	< 35	< 41	< 41	< 41	< 42
PHENANTHRENE	17,000,000	840,000	ug/kg	**150**	< 4	< 4	**62 J**	**19 J**	32	**6 J**	**64**	< 4	< 4	**16 J**	**19 J**	< 4	< 4	< 4
PHENOL	18,000,000	52,000	ug/kg	< 97	< 21	< 20	< 99	< 20	< 20	< 18	**23 J**	< 20	< 20	< 18	**35 J**	< 20	< 20	< 21
PYRENE	1,700,000	190,000	ug/kg	**140**	< 4	< 4	**62 J**	**13 J**	< 4	**5 J**	**79**	< 4	< 4	< 4	**23**	< 4	< 4	< 4
METAL (MG/KG)																		
ARSENIC	1.6	5.8	mg/kg	**10**	**14.8**	**10.9**	**15.7**	**14.1**	11.1	**10.6**	**11.4**	**14.9**	**9.26**	**26.2**	**13.1**	**13.4**	**11.9**	**12.8**
BARIUM	19,000	1640	mg/kg	**123**	**55**	**39.1**	**104**	**68.4**	39.7	**58.6**	**127 J**	**89.8**	**56.1**	**60.1**	**86.3**	**99.8**	**92.6**	**63.4**
CADMIUM	80	7.6	mg/kg	**1.14**	**1.37**	**1.01**	**0.537 J**	**1.18**	1.05	**0.645**	**1**	**0.988**	**0.772**	**0.706**	**1.11**	**0.979**	**0.923**	**0.798**
CHROMIUM	150,000	560,000,000	mg/kg	**21.2**	**21.8**	**12.4**	**10.6**	**18.6**	11.4	**5.14**	**23.1**	**22.5**	**12.3**	**7.21**	**23**	**20.9**	**19.6**	**14.9**
LEAD	80	280	mg/kg	**20**	**15.8**	**11.3**	**8.51**	**14.1**	11.5	**4.93**	**17.3 J**	**14.1**	**11.1**	**6.05**	**18.6**	**15.4**	**14**	**12.1**
MERCURY	3.13	2	mg/kg	**0.0328 J**	**0.0219 J**	**0.0146 J**	**0.0303 J**	**0.0263 J**	0.0178 J	< 0.0073	**0.0131 J**	**0.0183 J**	**0.0149 J**	< 0.007	**0.0234 J**	**0.017 J**	**0.0278 J**	**0.0175 J**
SELENIUM	510	5.2	mg/kg	< 0.794	< 0.804	< 0.793	**1.31 J**	< 0.809	< 0.804	< 0.718	< 0.759	< 0.82	< 0.783	< 0.69	< 0.831	< 0.787	< 0.812	< 0.849
SILVER	510	12	mg/kg	< 0.097	< 0.0982	< 0.0967	< 0.0974	< 0.0988	< 0.0982	< 0.0876	< 0.0927	< 0.1	< 0.0956	< 0.0842	< 0.101	< 0.096	< 0.0991	< 0.104
GENERAL CHEM (percent)																		
MOISTURE	--	--	- -	**14.4**	**18.7**	**17.5**	**15.6**	**18.4**		**17.1**	- -	**5.2**	- -	**16.5**	**18.2**	**17.7**	**17.9**	**19.9**

Notes:
[1]USEPA Industrial Regional Screening Level (RSL) based on 1x10^{-6} or HQ = 0.1 (November 2011)
[2]USEPA Protection of Groundwater Soil Screening Level (SSL) based dilution attenuation factor of 20 (November 2011)
NA = Not analyzed
J = The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.
R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet the quality control criteria. The presence or absence of the analyte cannot be verified.
< = The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was below the reported sample quantitation limit. However, the reported value is approximate.
mg/kg = Milligrams per Kilogram
ug/kg = Micrograms per Kilogram
Bold indicates the analyte was detected
Shading indicates the result exceeded industrial soil RSL
Box indicates the result exceeded protection of groundwater SSL

TABLE 5-1
SWMU 1 Soil Data
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

	S01-SS05				S01-SS06				S01-SS07			S01-SS08				S01-SS09		
	S01-SS05-0002-121211	S01-SS05-0305-121211	S01-SS05-0810-121211	S01-SS05-2123-121211	S01-SS06-0002-121211	S01-SS06-0305-121211	S01-SS06-0810-121211	S01-SS06-1315-121211	S01-SS07-0002-121211	S01-SS07-0305-121211	S01-SS07-0810-121211	S01-SS08-0002-121211	S01-SS08-0305-121211	S01-SS08-0810-121211	S01-SS08-2123-121211	S01-SS09-0002-121211	S01-SS09-0305-121211	S01-SS09-0810-121211
	0 - 2	3 - 5	8 - 10	21 - 23	0 - 2	3 - 5	8 - 10	13 - 15	0 - 2	3 - 5	8 - 10	0 - 2	3 - 5	8 - 10	21 - 23	0 - 2	3 - 5	8 - 10
	12/12/2011	12/12/2011	12/12/2011	12/12/2011	12/12/2011	12/12/2011	12/12/2011	12/12/2011	12/12/2011	12/12/2011	12/12/2011	12/12/2011	12/12/2011	12/12/2011	12/12/2011	12/12/2011	12/12/2011	12/12/2011
Analyte																		
VOC (ug/kg)																		
1,1,1,2-TETRACHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1
1,1,1-TRICHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2,2-TETRACHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2-TRICHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1
1,1-DICHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1
1,1-DICHLOROETHENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1
1,1-DICHLOROPROPENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1
1,2,3-TRICHLOROBENZENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1
1,2,3-TRICHLOROPROPANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1
1,2,4-TRICHLOROBENZENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1
1,2,4-TRIMETHYLBENZENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	**2 J**	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1
1,2-DIBROMO-3-CHLOROPROPANE	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 3	< 2	< 2
1,2-DIBROMOETHANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1
1,2-DICHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1
1,2-DICHLOROPROPANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1
1,3,5-TRIMETHYLBENZENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1
1,3-DICHLOROPROPANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1
2,2-DICHLOROPROPANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1
2-BUTANONE	< 4	< 4	**5 J**	< 4	< 4	**4 J**	< 4	< 5	**12**	< 4	< 4	**9**	< 4	< 4	< 4	**9 J**	< 4	< 4
2-CHLOROTOLUENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1
2-HEXANONE	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 4	**17**	**5 J**	< 3	< 3	< 3	< 3	< 3	< 4	< 3	< 3
4-CHLOROTOLUENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1
4-METHYL-2-PENTANONE	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 4	**5 J**	< 3	< 3	< 3	< 3	< 3	< 3	< 4	< 3	< 3
ACETONE	**8 J**	**15 J**	**43 J**	**8 J**	**31 J**	**33 J**	**20 J**	**21 J**	**50 J**	**23 J**	**18 J**	**68 J**	**16 J**	**14 J**	< 8	**31 J**	**28 J**	**14 J**
BENZENE	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.6	**3 J**	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.6	< 0.7	< 0.5	< 0.5
BROMOBENZENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1
BROMOCHLOROMETHANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1
BROMODICHLOROMETHANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1
BROMOFORM	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	**6**	**1 J**	< 1	< 1	< 1	< 1
BROMOMETHANE	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 3	< 2	< 2
CARBON DISULFIDE	< 1	< 1	< 1	**2 J**	< 1	< 1	< 1	< 1	**14**	< 1	< 1	**1 J**	< 1	< 1	**4 J**	**10 J**	< 1	< 1
CARBON TETRACHLORIDE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROBENZENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 3	< 2	< 2
CHLOROFORM	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 3	< 2	< 2
CIS-1,2-DICHLOROETHENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	**1 J**	**3 J**	< 1	< 1	**3 J**	< 1
CIS-1,3-DICHLOROPROPENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1
CYCLOHEXANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1
DIBROMOCHLOROMETHANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1
DIBROMOMETHANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1
DICHLORODIFLUOROMETHANE	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 3	< 2	< 2
ETHYLBENZENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	**1 J**	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1
FREON 113	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 3	< 2	< 2
HEXACHLOROBUTADIENE	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 3	< 2	< 2
ISOPROPYLBENZENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1
M+P-XYLENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	**2 J**	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1
METHYL ACETATE	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 3	< 2	< 2
METHYL TERTIARY BUTYL ETHER	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.6	< 0.6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.6	< 0.7	< 0.5	< 0.5
METHYLCYCLOHEXANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1
METHYLENE CHLORIDE	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 3	< 2	< 2
N-BUTYLBENZENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1
N-PROPYLBENZENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1
NAPHTHALENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	**2 J**	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1
O-XYLENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1
P-ISOPROPYLTOLUENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1
SEC-BUTYLBENZENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1
STYRENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1
TERT-BUTYLBENZENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1
TETRACHLOROETHENE	**3 J**	**4 J**	**5 J**	**20**	**2 J**	**2 J**	**8**	**10**	**2 J**	**3 J**	**4 J**	**4 J**	**70**	**97**	**2 J**	**53**	**33**	**21**
TOLUENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	**6 J**	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1,2-DICHLOROETHENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1,3-DICHLOROPROPENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROETHENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	**2 J**	**3 J**	< 1	**3 J**	**4 J**	**1 J**
TRICHLOROFLUOROMETHANE	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 3	< 2	< 2
VINYL ACETATE	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 3	< 2	< 2
VINYL CHLORIDE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1
SVOC (ug/kg)																		
1,1'-BIPHENYL	< 20	< 20	< 21	< 18	**680**	< 20	< 21	< 17	< 180	< 20	< 21	< 18	< 20	< 20	< 17	< 18	< 20	< 20
1,2-DICHLOROBENZENE	< 1	< 1	**2 J**	**2 J**	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	**4 J**	**2 J**	< 1	< 1	< 1	**1 J**
1,3-DICHLOROBENZENE	< 1	< 1	< 1	**6**	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1
1,4-DICHLOROBENZENE	< 1	< 1	**2 J**	**2 J**	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1
1,4-DIOXANE	< 120	< 120	< 120	< 110	< 610	< 120	< 120	< 100	< 1100	< 120	< 120	< 110	< 120	< 120	< 100	< 110	< 120	< 120
2,4,5-TRICHLOROPHENOL	< 20	< 20	< 21	< 18	< 100	< 20	< 21	< 17	< 180	< 20	< 21	< 18	< 20	< 20	< 17	< 18	< 20	< 20
2,4,6-TRICHLOROPHENOL	< 20	< 20	< 21	< 18	< 100	< 20	< 21	< 17	< 180	< 20	< 21	< 18	< 20	< 20	< 17	< 18	< 20	< 20
2,4-DICHLOROPHENOL	< 20	< 20	< 21	< 18	< 100	< 20	< 21	< 17	< 180	< 20	< 21	< 18	< 20	< 20	< 17	< 18	< 20	< 20
2,4-DIMETHYLPHENOL	< 20	< 20	< 21	< 18	< 100	< 20	< 21	< 17	< 180	< 20	< 21	< 18	< 20	< 20	< 17	**25 J**	< 20	< 20
2,4-DINITROPHENOL	< 400	< 410	< 410	< 360	< 2000	< 410	< 420	< 350	< 3700	< 410	< 410	< 370	< 410	< 410	< 350	< 370	< 410	< 400
2,4-DINITROTOLUENE	< 80	< 82	< 83	< 71	< 410	< 82	< 83	< 69	< 740	< 82	< 83	< 74	< 82	< 82	< 70	< 74	< 81	< 81
2,6-DINITROTOLUENE	< 20	< 20	< 21	< 18	< 100	< 20	< 21	< 17	< 180	< 20	< 21	< 18	< 20	< 20	< 17	< 18	< 20	< 20
2-CHLORONAPHTHALENE	< 8	< 9	< 9	< 7	< 43	< 9	< 9	< 7	< 77	< 9	< 9	< 8	< 9	< 9	< 7	< 8	< 9	< 8
2-CHLOROPHENOL	< 20	< 20	< 21	< 18	< 100	< 20	< 21	< 17	< 180	< 20	< 21	< 18	< 20	< 20	< 17	< 18	< 20	< 20
2-METHYLNAPHTHALENE	< 4	< 4	< 4	**5 J**	< 20	< 4	**5 J**	< 3	< 37	< 4	< 4	**6 J**	< 4	< 4	< 3	**26**	< 4	< 4
2-METHYLPHENOL	< 20	< 20	< 21	< 18	< 100	< 20	< 21	< 17	< 180	< 20	< 21	< 18	< 20	< 20	< 17	< 18	< 20	< 20
2-NITROANILINE	< 20	< 20	< 21	< 18	< 100	< 20	< 21	< 17	< 180	< 20	< 21	< 18	< 20	< 20	< 17	< 18	< 20	< 20
2-NITROPHENOL	< 20	< 20	< 21	< 18	< 100	< 20	< 21	< 17	< 180	< 20	< 21	< 18	< 20	< 20	< 17	< 18	< 20	< 20
3,3'-DICHLOROBENZIDINE	< 120	< 120	< 120	< 110	< 610	< 120	< 120	< 100	< 1100	< 120	< 120	< 110	< 120	< 120	< 100	< 110	< 120	< 120
3-NITROANILINE	< 80	< 82	< 83	< 71	< 410	< 82	< 83	< 69	< 740	< 82	< 83	< 74	< 82	< 82	< 70	< 74	< 81	< 81
4,6-DINITRO-2-METHYLPHENOL	< 200	< 200	< 210	< 180	< 1000	< 200	< 210	< 170	< 1800	< 200	< 210	< 180	< 200	< 200	< 170	< 180	< 200	< 200
4-BROMOPHENYL-PHENYLETHER	< 20	< 20	< 21	< 18	< 100	< 20	< 21	< 17	< 180	< 20	< 21	< 18	< 20	< 20	< 17	< 18	< 20	< 20
4-CHLORO-3-METHYLPHENOL	< 20	< 20	< 21	< 18	< 100	< 20	< 21	< 17	< 180	< 20	< 21	< 18	< 20	< 20	< 17	< 18	< 20	< 20
4-CHLOROANILINE	< 20	< 20	< 21	< 18	< 100	< 20	< 21	< 17	< 180	< 20	< 21	< 18	< 20	< 20	< 17	< 18	< 20	< 20
4-CHLOROPHENYL-PHENYLETHER	< 20	< 20	< 21	< 18	< 100	< 20	< 21	< 17	< 180	< 20	< 21	< 18	< 20	< 20	< 17	< 18	< 20	< 20

TABLE 5-1
SWMU 1 Soil Data
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

	S01-SS05				S01-SS06				S01-SS07			S01-SS08				S01-SS09		
	S01-SS05-0002-121211	S01-SS05-0305-121211	S01-SS05-0810-121211	S01-SS05-2123-121211	S01-SS06-0002-121211	S01-SS06-0305-121211	S01-SS06-0810-121211	S01-SS06-1315-121211	S01-SS07-0002-121211	S01-SS07-0305-121211	S01-SS07-0810-121211	S01-SS08-0002-121211	S01-SS08-0305-121211	S01-SS08-0810-121211	S01-SS08-2123-121211	S01-SS09-0002-121211	S01-SS09-0305-121211	S01-SS09-0810-121211
	0 - 2	3 - 5	8 - 10	21 - 23	0 - 2	3 - 5	8 - 10	13 - 15	0 - 2	3 - 5	8 - 10	0 - 2	3 - 5	8 - 10	21 - 23	0 - 2	3 - 5	8 - 10
	12/12/2011	12/12/2011	12/12/2011	12/12/2011	12/12/2011	12/12/2011	12/12/2011	12/12/2011	12/12/2011	12/12/2011	12/12/2011	12/12/2011	12/12/2011	12/12/2011	12/12/2011	12/12/2011	12/12/2011	12/12/2011
Analyte																		
4-METHYLPHENOL	< 20	< 20	< 21	< 18	< 100	< 20	< 21	< 17	< 180	< 20	< 21	< 18	< 20	< 20	< 17	**63**	< 20	< 20
4-NITROANILINE	< 80	< 82	< 83	< 71	< 410	< 82	< 83	< 69	< 740	< 82	< 83	< 74	< 82	< 82	< 70	< 74	< 81	< 81
4-NITROPHENOL	< 200	< 200	< 210	< 180	< 1000	< 200	< 210	< 170	< 1800	< 200	< 210	< 180	< 200	< 200	< 170	< 180	< 200	< 200
ACENAPHTHENE	< 4	< 4	< 4	< 4	< 20	< 4	< 4	< 3	< 37	< 4	< 4	**7 J**	< 4	< 4	< 3	**47**	< 4	< 4
ACENAPHTHYLENE	< 4	< 4	< 4	< 4	< 20	< 4	< 4	< 3	**360**	< 4	< 4	**100**	< 4	< 4	< 3	**1100**	< 4	< 4
ANTHRACENE	< 4	< 4	< 4	< 4	< 20	< 4	< 4	< 3	**200**	< 4	< 4	**80**	< 4	< 4	< 3	**1200**	< 4	< 4
BENZO(A)ANTHRACENE	< 4	< 4	< 4	**5 J**	**78 J**	< 4	< 4	< 3	**570**	< 4	< 4	**220**	< 4	< 4	< 3	**3700**	< 4	< 4
BENZO(A)PYRENE	< 4	< 4	< 4	**6 J**	**73 J**	< 4	< 4	< 3	**850**	< 4	< 4	**310**	< 4	< 4	< 3	**3800**	< 4	< 4
BENZO(B)FLUORANTHENE	**5 J**	< 4	< 4	**11 J**	**100**	< 4	< 4	< 3	**1200**	< 4	< 4	**420**	< 4	< 4	< 3	**5800**	< 4	< 4
BENZO(G,H,I)PERYLENE	**6 J**	< 4	< 4	**12 J**	**58 J**	< 4	< 4	< 3	**770**	< 4	< 4	**350**	< 4	< 4	< 3	**3000**	< 4	< 4
BENZO(K)FLUORANTHENE	< 4	< 4	< 4	< 4	**47 J**	< 4	< 4	< 3	**470**	< 4	< 4	**210**	< 4	< 4	< 3	**1800**	< 4	< 4
BENZYL ALCOHOL	< 200	< 200	< 210	< 180	< 1000	< 200	< 210	< 170	< 1800	< 200	< 210	< 180	< 200	< 200	< 170	< 180	< 200	< 200
BIS(2-CHLOROETHOXY)METHANE	< 20	< 20	< 21	< 18	< 100	< 20	< 21	< 17	< 180	< 20	< 21	< 18	< 20	< 20	< 17	< 18	< 20	< 20
BIS(2-CHLOROETHYL)ETHER	< 20	< 20	< 21	< 18	< 100	< 20	< 21	< 17	< 180	< 20	< 21	< 18	< 20	< 20	< 17	< 18	< 20	< 20
BIS(2-ETHYLHEXYL)PHTHALATE	< 80	< 82	< 83	< 71	< 410	< 82	< 83	< 69	< 740	< 82	< 83	< 74	< 82	< 82	< 70	< 74	< 81	< 81
BUTYLBENZYLPHTHALATE	< 80	< 82	< 83	< 71	< 410	< 82	< 83	< 69	< 740	< 82	< 83	< 74	< 82	< 82	< 70	< 74	< 81	< 81
CARBAZOLE	< 20	< 20	< 21	< 18	< 100	< 20	< 21	< 17	< 180	< 20	< 21	< 18	< 20	< 20	< 17	**120**	< 20	< 20
CHRYSENE	**5 J**	< 4	< 4	**13 J**	**92 J**	< 4	< 4	< 3	**480**	< 4	< 4	**220**	< 4	< 4	< 3	**3500**	< 4	< 4
DI-N-BUTYLPHTHALATE	< 80	< 82	< 83	< 71	< 410	< 82	< 83	< 69	< 740	< 82	< 83	< 74	< 82	< 82	< 70	< 74	< 81	< 81
DI-N-OCTYLPHTHALATE	< 80	< 82	< 83	< 71	< 410	< 82	< 83	< 69	< 740	< 82	< 83	< 74	< 82	< 82	< 70	< 74	< 81	< 81
DIBENZ(A,H)ANTHRACENE	< 4	< 4	< 4	< 4	< 20	< 4	< 4	< 3	**210**	< 4	< 4	**84**	< 4	< 4	< 3	**890**	< 4	< 4
DIBENZOFURAN	< 20	< 20	< 21	< 18	< 100	< 20	< 21	< 17	< 180	< 20	< 21	< 18	< 20	< 20	< 17	**51**	< 20	< 20
DIETHYLPHTHALATE	< 80	< 82	< 83	< 71	< 410	< 82	< 83	< 69	< 740	< 82	< 83	< 74	< 82	< 82	< 70	< 74	< 81	< 81
DIMETHYLPHTHALATE	< 80	< 82	< 83	< 71	< 410	< 82	< 83	< 69	< 740	< 82	< 83	< 74	< 82	< 82	< 70	< 74	< 81	< 81
FLUORANTHENE	**8 J**	< 4	< 4	**20**	**130**	< 4	< 4	< 3	**600**	< 4	< 4	**260**	< 4	< 4	< 3	**5600**	< 4	< 4
FLUORENE	< 4	< 4	< 4	< 4	< 20	< 4	< 4	< 3	< 37	< 4	< 4	**15 J**	< 4	< 4	< 3	**100**	< 4	< 4
HEXACHLOROBENZENE	< 4	< 4	< 4	< 4	< 20	< 4	< 4	< 3	< 37	< 4	< 4	< 4	< 4	< 4	< 3	< 4	< 4	< 4
HEXACHLOROCYCLOPENTADIENE	< 200	< 200	< 210	< 180	< 1000	< 200	< 210	< 170	< 1800	< 200	< 210	< 180	< 200	< 200	< 170	< 180	< 200	< 200
HEXACHLOROETHANE	< 40	< 41	< 41	< 36	< 200	< 41	< 42	< 35	< 370	< 41	< 41	< 37	< 41	< 41	< 35	< 37	< 41	< 40
INDENO(1,2,3-CD)PYRENE	< 4	< 4	< 4	**6 J**	**51 J**	< 4	< 4	< 3	**570**	< 4	< 4	**270**	< 4	< 4	< 3	**2700**	< 4	< 4
ISOPHORONE	< 20	< 20	< 21	< 18	< 100	< 20	< 21	< 17	< 180	< 20	< 21	< 18	< 20	< 20	< 17	< 18	< 20	< 20
N-NITROSO-DI-N-PROPYLAMINE	< 20	< 20	< 21	< 18	< 100	< 20	< 21	< 17	< 180	< 20	< 21	< 18	< 20	< 20	< 17	< 18	< 20	< 20
N-NITROSODIPHENYLAMINE	< 20	< 20	< 21	< 18	< 100	< 20	< 21	< 17	< 180	< 20	< 21	< 18	< 20	< 20	< 17	< 18	< 20	< 20
NITROBENZENE	< 20	< 20	< 21	< 18	< 100	< 20	< 21	< 17	< 180	< 20	< 21	< 18	< 20	< 20	< 17	< 18	< 20	< 20
PENTACHLOROPHENOL	< 40	< 41	< 41	< 36	< 200	< 41	< 42	< 35	< 370	< 41	< 41	< 37	< 41	< 41	< 35	< 37	< 41	< 40
PHENANTHRENE	**8 J**	< 4	< 4	**26**	**73 J**	< 4	< 4	< 3	**110 J**	< 4	< 4	**82 J**	< 4	< 4	< 3	**1000**	< 4	< 4
PHENOL	< 20	< 20	< 21	< 18	< 100	< 20	< 21	< 17	< 180	< 20	< 21	< 18	< 20	< 20	< 17	**43**	< 20	< 20
PYRENE	**9 J**	< 4	< 4	**23**	**120**	< 4	< 4	< 3	**580**	< 4	< 4	**250**	< 4	< 4	< 3	**4400**	< 4	< 4
METAL (MG/KG)																		
ARSENIC	**12.5**	**12.1**	**15.2**	**5.75**	**11.3**	**13.8**	**10.8**	**7.92**	**7.5**	**12.8**	**10.1**	**6.64**	**14.9**	**10.3**	**7.54**	**6.57**	**17.3**	**13.1**
BARIUM	**103**	**78.2**	**61.5**	**86.5**	**107**	**62.1**	**70.9**	**70.1**	**795**	**85.5**	**61.8**	**611**	**105**	**79.8**	**37.5**	**859**	**98.6**	**60**
CADMIUM	**0.921**	**0.953**	**0.868**	**0.502 J**	**1.04**	**1**	**0.869**	**0.576**	**0.0461 J**	**0.137 J**	**0.199 J**	**0.454 J**	**0.137 J**	**0.263 J**	**0.122 J**	**0.042 J**	**1.04**	**0.749**
CHROMIUM	**26**	**19.7**	**13.9**	**11.8**	**34.9**	**21.5**	**14.9**	**9.49**	**36.7**	**21.4**	**13.8**	**26.1**	**22.1**	**14.6**	**5.01**	**44.4**	**21.6**	**11.9**
LEAD	**15.2**	**14.8**	**12**	**5.91**	**73.5**	**16.1**	**12.6**	**6.57**	**11**	**15.9**	**11.7**	**15.4**	**18.3**	**12.9**	**3.25**	**5.58**	**17.1**	**10.7**
MERCURY	**0.0098 J**	**0.0236 J**	**0.021 J**	< 0.0072	**0.0204 J**	**0.0482 J**	**0.0137 J**	< 0.0071	< 0.0073	**0.0147 J**	**0.0138 J**	**0.0278 J**	**0.0229 J**	**0.0142 J**	< 0.0071	**0.0214 J**	**0.0173 J**	**0.0174 J**
SELENIUM	< 0.803	< 0.816	< 0.819	< 0.711	< 0.803	< 0.816	< 0.838	< 0.685	**8.74**	< 0.809	< 0.803	**5.35**	< 0.794	< 0.796	< 0.697	**15.1**	< 0.831	< 0.823
SILVER	< 0.098	< 0.0996	< 0.1	< 0.0868	< 0.098	< 0.0996	< 0.102	< 0.0836	< 0.0889	< 0.0988	< 0.0981	< 0.0883	< 0.0969	< 0.0971	< 0.0851	**0.256 J**	< 0.101	< 0.1
GENERAL CHEM (percent)																		
MOISTURE	**17**	**6.3**	**18.3**	**19.4**	**17.8**	**3.6**	**18.3**	**19.7**	**9.4**	**18.4**	**19.4**	**9.6**	**4.4**	**18.4**	**18.6**	**9.6**	**18.2**	**17.4**

Notes:
[1]USEPA Industrial Regional Screening Level (RSL) based on 1x10^{-6} or HQ = 0.1 (November 2011)
[2]USEPA Protection of Groundwater Soil Screening Level (SSL) based dilution attenuation factor of 20 (November 2011)
NA = Not analyzed
J = The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.
R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet the quality control criteria. The presence or absence of the analyte cannot be verified.
< = The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was below the reported sample quantitation limit. However, the reported value is approximate.
mg/kg = Milligrams per Kilogram
ug/kg = Micrograms per Kilogram
Bold indicates the analyte was detected
Shading indicates the result exceeded industrial soil RSL
Box indicates the result exceeded protection of groundwater SSL

TABLE 5-2
SWMU 11 Soil Data
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Analyte	Industrial RSL[1]	Protection of Groundwater SSLs[2]	Location	S11-SS01			S11-SS02			S11-SS03				S11-SS04			S11-SS05		
			Sample ID	S11-SS01-0002-121311	S11-SS01-0308-121311	S11-SS01-0810-121311	S11-SS02-0002-121311	S11-SS02-0305-121311	S11-SS02-0810-121311	HGR-121311-FD01	S11-SS03-0002-121311	S11-SS03-0305-121311	S11-SS03-0810-121311	S11-SS04-0002-121311	S11-SS04-0305-121311	S11-SS04-0810-121311	S11-SS05-0002-121311	S11-SS05-0305-121311	S11-SS05-0810-121311
			Sample Depth (ft)	0 - 2	3 - 8	8 - 10	0 - 2	3 - 5	8 - 10	0 - 2	0 - 2	3 - 5	8 - 10	0 - 2	3 - 5	8 - 10	0 - 2	3 - 5	8 - 10
			Sample Date	12/13/2011	12/13/2011	12/13/2011	12/13/2011	12/13/2011	12/13/2011	12/13/2011	12/13/2011	12/13/2011	12/13/2011	12/13/2011	12/13/2011	12/13/2011	12/13/2011	12/13/2011	12/13/2011
			UNITS																
VOC (ug/kg)																			
1,1,1,2-TETRACHLOROETHANE	9,300	3.8	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,1-TRICHLOROETHANE	640,000	1,400	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	**2 J**	< 1	< 1
1,1,2,2-TETRACHLOROETHANE	2,800	0.52	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2-TRICHLOROETHANE	680	32	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1-DICHLOROETHANE	17,000	13.6	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1-DICHLOROETHENE	110,000	50	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1-DICHLOROPROPENE	110,000	50	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2,3-TRICHLOROBENZENE	49,000	300	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2,3-TRICHLOROPROPANE	95	0.0056	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2,4-TRICHLOROBENZENE	27,000	4,000	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2,4-TRIMETHYLBENZENE	26,000	420	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2-DIBROMO-3-CHLOROPROPANE	69	1.72	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
1,2-DIBROMOETHANE	170	0.28	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2-DICHLOROETHANE	2,200	28	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2-DICHLOROPROPANE	4,700	34	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,3,5-TRIMETHYLBENZENE	182,000	2,400	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,3-DICHLOROPROPANE	1,490,000	1,980	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2,2-DICHLOROPROPANE	4,700	34	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2-BUTANONE	20,000,000	20,000	ug/kg	**18 J**	< 4	**5 J**	**5 J**	**5 J**	< 4	**5 J**	**10 J**	< 4	**6 J**	**5 J**	< 4	< 4	**9 J**	**5 J**	**5 J**
2-CHLOROTOLUENE	907,000	3,400	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2-HEXANONE	140,000	158	ug/kg	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 4	< 3	< 3	< 3	< 3	< 3	< 3
4-CHLOROTOLUENE	253,000	3,600	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
4-METHYL-2-PENTANONE	3,360,000	4,600	ug/kg	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 4	< 3	< 3	< 3	< 3	< 3	< 3
ACETONE	63,000,000	48,000	ug/kg	**120 J**	**32 J**	**35 J**	**71 J**	**37 J**	**29 J**	**47 J**	**73 J**	**32 J**	**38 J**	**40 J**	**15 J**	**25 J**	**91 J**	**35 J**	**34 J**
BENZENE	5,400	52	ug/kg	< 0.6	< 0.5	< 0.6	< 0.5	**0.7 J**	< 0.5	< 0.5	< 0.5	< 0.5	< 0.6	< 0.5	< 0.5	< 0.6	< 0.5	< 0.5	< 0.6
BROMOBENZENE	180,000	720	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOCHLOROMETHANE	68,000	420	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMODICHLOROMETHANE	1,400	440	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOFORM	220,000	420	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	3,200	36	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
CARBON DISULFIDE	370,000	4,200	ug/kg	**1 J**	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	**8**	< 1	< 1	< 1	**1 J**	< 1
CARBON TETRACHLORIDE	3,000	38	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROBENZENE	140,000	1360	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	2,120,000	118,000	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
CHLOROFORM	1,500	440	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	50,000	980	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
CIS-1,2-DICHLOROETHENE	200,000	420	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CIS-1,3-DICHLOROPROPENE	8,300	3	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CYCLOHEXANE	117,000	260,000	ug/kg	< 1	< 1	< 1	< 1	**1 J**	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
DIBROMOCHLOROMETHANE	3,300	420	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
DIBROMOMETHANE	11,000	38	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
DICHLORODIFLUOROMETHANE	40,000	6,000	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
ETHYLBENZENE	27,000	15,600	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
FREON 113	910,000	2,600,000	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
HEXACHLOROBUTADIENE	22,000	10	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
ISOPROPYLBENZENE	268,000	12,800	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
M+P-XYLENE	250,000	3,600	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
METHYL ACETATE	29,000,000	64,000	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
METHYL TERTIARY BUTYL ETHER	220,000	56	ug/kg	< 0.6	< 0.5	< 0.6	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.6	< 0.5	< 0.5	< 0.6	< 0.5	< 0.5	< 0.6
METHYLCYCLOHEXANE	--	NA	- -	< 1	< 1	< 1	< 1	**1 J**	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
METHYLENE CHLORIDE	53,000	26	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
N-BUTYLBENZENE	108,000	50,000	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
N-PROPYLBENZENE	264,000	19,800	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
NAPHTHALENE	18,000	9.4	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
O-XYLENE	300,000	3,800	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
P-ISOPROPYLTOLUENE	268,000	12,800	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
SEC-BUTYLBENZENE	268,000	12,800	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
STYRENE	867,000	2,200	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TERT-BUTYLBENZENE	268,000	12,800	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TETRACHLOROETHENE	2,600	46	ug/kg	**5 J**	< 1	< 1	< 1	< 1	< 1	**7**	**11**	**2 J**	**3 J**	< 1	< 1	< 1	**17**	< 1	< 1
TOLUENE	818,000	13,800	ug/kg	< 1	< 1	< 1	< 1	**2 J**	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1,2-DICHLOROETHENE	69,000	580	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1,3-DICHLOROPROPENE	8,300	3	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROETHENE	2,000	36	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	340,000	13,800	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
VINYL ACETATE	410,000	1,740	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
VINYL CHLORIDE	1,700	13.8	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
SVOC (ug/kg)																			
1,1'-BIPHENYL	21,000	174	ug/kg	< 20	< 21	< 22	< 20	< 21	< 21	< 20	< 20	< 20	< 21	< 20	< 21	< 21	< 20	< 21	< 21
1,2-DICHLOROBENZENE	376,000	11,600	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,3-DICHLOROBENZENE	12,000	1,440	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,4-DICHLOROBENZENE	12,000	1,440	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,4-DIOXANE	17,000	2.8	ug/kg	< 120	< 120	< 130	< 120	< 120	< 120	< 120	< 120	< 120	< 130	< 120	< 120	< 120	< 120	< 120	< 130
2,4,5-TRICHLOROPHENOL	6,200,000	66,000	ug/kg	< 20	< 21	< 22	< 20	< 21	< 21	< 20	< 20	< 20	< 21	< 20	< 21	< 21	< 20	< 21	< 21
2,4,6-TRICHLOROPHENOL	62,000	260	ug/kg	< 20	< 21	< 22	< 20	< 21	< 21	< 20	< 20	< 20	< 21	< 20	< 21	< 21	< 20	< 21	< 21
2,4-DICHLOROPHENOL	180,000	820	ug/kg	< 20	< 21	< 22	< 20	< 21	< 21	< 20	< 20	< 20	< 21	< 20	< 21	< 21	< 20	< 21	< 21
2,4-DIMETHYLPHENOL	1,200,000	6,400	ug/kg	< 20	< 21	< 22	< 20	< 21	< 21	< 20	< 20	< 20	< 21	< 20	< 21	< 21	< 20	< 21	< 21
2,4-DINITROPHENOL	120,000	680	ug/kg	< 410	< 410	< 430	< 410	< 410	< 420	< 400	< 400	< 410	< 420	< 410	< 410	< 410	< 400	< 410	< 420
2,4-DINITROTOLUENE	5,500	5.6	ug/kg	< 82	< 82	< 86	< 82	< 83	< 83	< 80	< 81	< 81	< 83	< 81	< 83	< 82	< 80	< 82	< 84
2,6-DINITROTOLUENE	62,000	400	ug/kg	< 20	< 21	< 22	< 20	< 21	< 21	< 20	< 20	< 20	< 21	< 20	< 21	< 21	< 20	< 21	< 21
2-CHLORONAPHTHALENE	175,000	58,000	ug/kg	< 9	< 9	< 9	< 9	< 9	< 9	< 8	< 8	< 9	< 9	< 9	< 9	< 9	< 8	< 9	< 9
2-CHLOROPHENOL	510,000	1,140	ug/kg	< 20	< 21	< 22	< 20	< 21	< 21	< 20	< 20	< 20	< 21	< 20	< 21	< 21	< 20	< 21	< 21
2-METHYLNAPHTHALENE	368,000	2,800	ug/kg	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4
2-METHYLPHENOL	3,100,000	11,600	ug/kg	< 20	< 21	< 22	< 20	< 21	< 21	< 20	< 20	< 20	< 21	< 20	< 21	< 21	< 20	< 21	< 21
2-NITROANILINE	600,000	1,240	ug/kg	< 20	< 21	< 22	< 20	< 21	< 21	< 20	< 20	< 20	< 21	< 20	< 21	< 21	< 20	< 21	< 21
2-NITROPHENOL	510,000	1,140	ug/kg	< 20	< 21	< 22	< 20	< 21	< 21	< 20	< 20	< 20	< 21	< 20	< 21	< 21	< 20	< 21	< 21
3,3'-DICHLOROBENZIDINE	3,800	14.2	ug/kg	< 120	< 120	< 130	< 120	< 120	< 120	< 120	< 120	< 120	< 130	< 120	< 120	< 120	< 120	< 120	< 130
3-NITROANILINE	600,000	1240	ug/kg	< 82	< 82	< 86	< 82	< 83	< 83	< 80	< 81	< 81	< 83	< 81	< 83	< 82	< 80	< 82	< 84
4,6-DINITRO-2-METHYLPHENOL	4,900	40	ug/kg	< 200	< 210	< 220	< 200	< 210	< 210	< 200	< 200	< 200	< 210	< 200	< 210	< 210	< 200	< 210	< 210
4-BROMOPHENYL-PHENYLETHER	--	NA	- -	< 20	< 21	< 22	< 20	< 21	< 21	< 20	< 20	< 20	< 21	< 20	< 21	< 21	< 20	< 21	< 21
4-CHLORO-3-METHYLPHENOL	6,200,000	26,000	ug/kg	< 20	< 21	< 22	< 20	< 21	< 21	< 20	< 20	< 20	< 21	< 20	< 21	< 21	< 20	< 21	< 21
4-CHLOROANILINE	8,600	2.6	ug/kg	< 20	< 21	< 22	< 20	< 21	< 21	< 20	< 20	< 20	< 21	< 20	< 21	< 21	< 20	< 21	< 21
4-CHLOROPHENYL-PHENYLETHER	--	NA	- -	< 20	< 21	< 22	< 20	< 21	< 21	< 20	< 20	< 20	< 21	< 20	< 21	< 21	< 20	< 21	< 21

TABLE 5-2
SWMU 11 Soil Data
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

			Location	S11-SS01			S11-SS02			S11-SS03				S11-SS04			S11-SS05		
			Sample ID	S11-SS01-0002-121311	S11-SS01-0308-121311	S11-SS01-0810-121311	S11-SS02-0002-121311	S11-SS02-0305-121311	S11-SS02-0810-121311	HGR-121311-FD01	S11-SS03-0002-121311	S11-SS03-0305-121311	S11-SS03-0810-121311	S11-SS04-0002-121311	S11-SS04-0305-121311	S11-SS04-0810-121311	S11-SS05-0002-121311	S11-SS05-0305-121311	S11-SS05-0810-121311
		Protection of	Sample Depth (ft)	0 - 2	3 - 8	8 - 10	0 - 2	3 - 5	8 - 10	0 - 2	0 - 2	3 - 5	8 - 10	0 - 2	3 - 5	8 - 10	0 - 2	3 - 5	8 - 10
		Groundwater	Sample Date	12/13/2011	12/13/2011	12/13/2011	12/13/2011	12/13/2011	12/13/2011	12/13/2011	12/13/2011	12/13/2011	12/13/2011	12/13/2011	12/13/2011	12/13/2011	12/13/2011	12/13/2011	12/13/2011
Analyte	**Industrial RSL[1]**	**SSLs[2]**	**UNITS**																
4-METHYLPHENOL	310,000	1,140	ug/kg	< 20	< 21	< 22	< 20	< 21	< 21	< 20	< 20	< 20	< 21	< 20	< 21	< 21	< 20	< 21	< 21
4-NITROANILINE	86,000	28	ug/kg	< 82	< 82	< 86	< 82	< 83	< 83	< 80	< 81	< 81	< 83	< 81	< 83	< 82	< 80	< 82	< 84
4-NITROPHENOL	24,000	1.58	ug/kg	< 200	< 210	< 220	< 200	< 210	< 210	< 200	< 200	< 200	< 210	< 200	< 210	< 210	< 200	< 210	< 210
ACENAPHTHENE	3,300,000	82,000	ug/kg	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4
ACENAPHTHYLENE	3,300,000	82,000	ug/kg	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4
ANTHRACENE	17,000,000	840,000	ug/kg	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4
BENZO(A)ANTHRACENE	2,100	200	ug/kg	< 4	< 4	< 4	< 4	< 4	< 4	**5 J**	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4
BENZO(A)PYRENE	210	4,800	ug/kg	< 4	< 4	< 4	< 4	< 4	< 4	**4 J**	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4
BENZO(B)FLUORANTHENE	2,100	700	ug/kg	< 4	< 4	< 4	< 4	< 4	< 4	**5 J**	< 4	< 4	< 4	**4 J**	< 4	< 4	< 4	< 4	< 4
BENZO(G,H,I)PERYLENE	1,700,000	190,000	ug/kg	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4
BENZO(K)FLUORANTHENE	21,000	7,000	ug/kg	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4
BENZYL ALCOHOL	6,200,000	7,400	ug/kg	< 200	< 210	< 220	< 200	< 210	< 210	< 200	< 200	< 200	< 210	< 200	< 210	< 210	< 200	< 210	< 210
BIS(2-CHLOROETHOXY)METHANE	180,000	220	ug/kg	< 20	< 21	< 22	< 20	< 21	< 21	< 20	< 20	< 20	< 21	< 20	< 21	< 21	< 20	< 21	< 21
BIS(2-CHLOROETHYL)ETHER	1,000	0.062	ug/kg	< 20	< 21	< 22	< 20	< 21	< 21	< 20	< 20	< 20	< 21	< 20	< 21	< 21	< 20	< 21	< 21
BIS(2-ETHYLHEXYL)PHTHALATE	120,000	28,000	ug/kg	< 82	< 82	< 86	< 82	< 83	< 83	< 80	< 81	< 81	< 83	< 81	< 83	< 82	< 80	< 82	< 84
BUTYLBENZYLPHTHALATE	910,000	4,000	ug/kg	< 82	< 82	< 86	< 82	< 83	< 83	< 80	< 81	< 81	< 83	< 81	< 83	< 82	< 80	< 82	< 84
CARBAZOLE	--	NA	- -	< 20	< 21	< 22	< 20	< 21	< 21	< 20	< 20	< 20	< 21	< 20	< 21	< 21	< 20	< 21	< 21
CHRYSENE	210,000	22,000	ug/kg	< 4	< 4	< 4	< 4	< 4	< 4	**5 J**	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4
DI-N-BUTYLPHTHALATE	6,200,000	34,000	ug/kg	< 82	< 82	< 86	< 82	< 83	< 83	< 80	< 81	< 81	< 83	< 81	< 83	< 82	< 80	< 82	< 84
DI-N-OCTYLPHTHALATE	--	NA	- -	< 82	< 82	< 86	< 82	< 83	< 83	< 80	< 81	< 81	< 83	< 81	< 83	< 82	< 80	< 82	< 84
DIBENZ(A,H)ANTHRACENE	210	220	ug/kg	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4
DIBENZOFURAN	100,000	2,200	ug/kg	< 20	< 21	< 22	< 20	< 21	< 21	< 20	< 20	< 20	< 21	< 20	< 21	< 21	< 20	< 21	< 21
DIETHYLPHTHALATE	49,000,000	94,000	ug/kg	< 82	< 82	< 86	< 82	< 83	< 83	< 80	< 81	< 81	< 83	< 81	< 83	< 82	< 80	< 82	< 84
DIMETHYLPHTHALATE	--	NA	- -	< 82	< 82	< 86	< 82	< 83	< 83	< 80	< 81	< 81	< 83	< 81	< 83	< 82	< 80	< 82	< 84
FLUORANTHENE	2,200,000	1,400,000	ug/kg	< 4	**4 J**	< 4	< 4	< 4	< 4	**8 J**	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4
FLUORENE	2,200,000	80,000	ug/kg	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4
HEXACHLOROBENZENE	1,100	260	ug/kg	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4
HEXACHLOROCYCLOPENTADIENE	370,000	3200	ug/kg	< 200	< 210	< 220	< 200	< 210	< 210	< 200	< 200	< 200	< 210	< 200	< 210	< 210	< 200	< 210	< 210
HEXACHLOROETHANE	43,000	9.6	ug/kg	< 41	< 41	< 43	< 41	< 41	< 42	< 40	< 40	< 41	< 42	< 41	< 41	< 41	< 40	< 41	< 42
INDENO(1,2,3-CD)PYRENE	2,100	2400	ug/kg	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4
ISOPHORONE	1,800,000	440	ug/kg	< 20	< 21	< 22	< 20	< 21	< 21	< 20	< 20	< 20	< 21	< 20	< 21	< 21	< 20	< 21	< 21
N-NITROSO-DI-N-PROPYLAMINE	250	0.14	ug/kg	< 20	< 21	< 22	< 20	< 21	< 21	< 20	< 20	< 20	< 21	< 20	< 21	< 21	< 20	< 21	< 21
N-NITROSODIPHENYLAMINE	350,000	1,140	ug/kg	< 20	< 21	< 22	< 20	< 21	< 21	< 20	< 20	< 20	< 21	< 20	< 21	< 21	< 20	< 21	< 21
NITROBENZENE	24,000	1.58	ug/kg	< 20	< 21	< 22	< 20	< 21	< 21	< 20	< 20	< 20	< 21	< 20	< 21	< 21	< 20	< 21	< 21
PENTACHLOROPHENOL	2,700	200	ug/kg	< 41	< 41	< 43	< 41	< 41	< 42	< 40	< 40	< 41	< 42	< 41	< 41	< 41	< 40	< 41	< 42
PHENANTHRENE	17,000,000	840,000	ug/kg	< 4	< 4	< 4	< 4	< 4	< 4	**6 J**	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4
PHENOL	18,000,000	52,000	ug/kg	< 20	< 21	< 22	< 20	< 21	< 21	< 20	< 20	< 20	< 21	< 20	< 21	< 21	< 20	< 21	< 21
PYRENE	1,700,000	190,000	ug/kg	< 4	**6 J**	< 4	< 4	< 4	< 4	**8 J**	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4
METAL (MG/KG)																			
ARSENIC	1.6	5.8	mg/kg	**13.8**	**14.9**	**13**	**13.9**	**14.3**	**12.7**	**11.7**	**12**	**14.5**	**12.6**	**13.4**	**15.3 J**	**12.7**	**11.8**	**14.3**	**14.6**
BARIUM	19,000	1640	mg/kg	**147**	**113**	**67.8**	**112**	**90.5**	**77.3**	**187**	**168**	**115**	**65.3**	**118**	**76.1**	**54.2**	**154**	**91**	**99.6**
CADMIUM	80	7.6	mg/kg	**0.97**	**1**	**0.836**	**0.925**	**0.95**	**0.808**	**0.809**	**0.887**	**0.963**	**0.793**	**0.958**	**1.02**	**0.758**	**0.834**	**0.909**	**0.885**
CHROMIUM	150,000	560,000,000	mg/kg	**24**	**24.3**	**14**	**24.4**	**23.9**	**15.5**	**20.5**	**24.5**	**22**	**13.9**	**23.5**	**21.9 J**	**12.7**	**22.3**	**19.3**	**16.9**
LEAD	80	280	mg/kg	**16**	**13.4**	**11.6**	**15.4**	**12.8**	**10.8**	**13.8**	**16.3**	**13.9**	**11.9**	**15.5**	**14.8**	**11.1**	**15.3**	**14.5**	**13.3**
MERCURY	3.13	2	mg/kg	**0.0178 J**	**0.0246 J**	**0.0118 J**	**0.0132 J**	**0.0294 J**	**0.0205 J**	**0.0161 J**	**0.0167 J**	**0.0314 J**	**0.0157 J**	**0.0127 J**	**0.0222 J**	**0.0148 J**	**0.0095 J**	**0.0224 J**	**0.0217 J**
SELENIUM	510	5.2	mg/kg	< 0.811	< 0.805	< 0.869	< 0.817	< 0.817	< 0.841	**1.35 J**	< 0.799	< 0.806	< 0.833	< 0.811	< 0.809	< 0.823	< 0.813	< 0.823	< 0.856
SILVER	510	12	mg/kg	< 0.099	< 0.0983	< 0.106	< 0.0997	< 0.0997	< 0.103	< 0.096	< 0.0976	< 0.0984	< 0.102	< 0.099	< 0.0988	< 0.1	< 0.0993	< 0.1	< 0.105
GENERAL CHEM (percent)																			
MOISTURE	--	--	- -	**18.6**	**18.8**	**22.5**	**18.4**	**19.2**	**19.9**	**16.9**	**17.4**	**18.1**	**20**	**17.8**	**19.2**	**19**	**16.4**	**19**	**20.6**

Notes:
[1]USEPA Industrial Regional Screening Level (RSL) based on 1x10^{-6} or HQ = 0.1 (November 2011)
[2]USEPA Protection of Groundwater Soil Screening Level (SSL) based dilution attenuation factor of 20 (November 2011)
NA = Not analyzed
J = The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.
< = The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
mg/kg = Milligrams per Kilogram
ug/kg = Micrograms per Kilogram
Bold indicates the analyte was detected
Shading indicates the result exceeded industrial soil RSL
Box indicates the result exceeded protection of groundwater SSL

TABLE 5-3
SWMU 12 Soil Data
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Analyte	Industrial RSL[1]	Protection of Groundwater SSLs[2]	Location	S12-SS01			S12-SS02		
			Sample ID	S12-SS01-0002-120611	S12-SS01-0305-120611	S12-SS01-0810-120611	S12-SS02-0002-120611	S12-SS02-0305-120611	S12-SS02-0810-120611
			Sample Depth (ft)	0 - 2	3 - 5	8 - 10	0 - 2	3 - 5	8 - 10
			Sample Date	12/6/2011	12/6/2011	12/6/2011	12/6/2011	12/6/2011	12/6/2011
			UNITS						
VOC (ug/kg)									
1,1,1,2-TETRACHLOROETHANE	9,300	3.8	ug/kg	< 0.8	< 1	< 1	< 0.9	< 1	< 1
1,1,1-TRICHLOROETHANE	640,000	1,400	ug/kg	< 0.8	< 1	< 1	< 0.9	< 1	< 1
1,1,2,2-TETRACHLOROETHANE	2,800	0.52	ug/kg	< 0.8	< 1	< 1	< 0.9	< 1	< 1
1,1,2-TRICHLOROETHANE	680	32	ug/kg	< 0.8	< 1	< 1	< 0.9	< 1	< 1
1,1-DICHLOROETHANE	17,000	13.6	ug/kg	< 0.8	< 1	< 1	< 0.9	< 1	< 1
1,1-DICHLOROETHENE	110,000	50	ug/kg	< 0.8	< 1	< 1	< 0.9	< 1	< 1
1,1-DICHLOROPROPENE	110,000	50	ug/kg	< 0.8	< 1	< 1	< 0.9	< 1	< 1
1,2,3-TRICHLOROBENZENE	49,000	300	ug/kg	< 0.8	< 1	< 1	< 0.9	< 1	< 1
1,2,3-TRICHLOROPROPANE	95	0.0056	ug/kg	< 0.8	< 1	< 1	< 0.9	< 1	< 1
1,2,4-TRICHLOROBENZENE	27,000	4,000	ug/kg	< 0.8	< 1	< 1	< 0.9	< 1	< 1
1,2,4-TRIMETHYLBENZENE	26,000	420	ug/kg	< 0.8	< 1	< 1	< 0.9	< 1	< 1
1,2-DIBROMO-3-CHLOROPROPANE	69	1.72	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2
1,2-DIBROMOETHANE	170	0.28	ug/kg	< 0.8	< 1	< 1	< 0.9	< 1	< 1
1,2-DICHLOROETHANE	2,200	28	ug/kg	< 0.8	< 1	< 1	< 0.9	< 1	< 1
1,2-DICHLOROPROPANE	4,700	34	ug/kg	< 0.8	< 1	< 1	< 0.9	< 1	< 1
1,3,5-TRIMETHYLBENZENE	182,000	2,400	ug/kg	< 0.8	< 1	< 1	< 0.9	< 1	< 1
1,3-DICHLOROPROPANE	1,490,000	1,980	ug/kg	< 0.8	< 1	< 1	< 0.9	< 1	< 1
2,2-DICHLOROPROPANE	4,700	34	ug/kg	< 0.8	< 1	< 1	< 0.9	< 1	< 1
2-BUTANONE	20,000,000	20,000	ug/kg	< 3	< 4	< 4	< 4	< 5	< 4
2-CHLOROTOLUENE	907,000	3,400	ug/kg	< 0.8	< 1	< 1	< 0.9	< 1	< 1
2-HEXANONE	140,000	158	ug/kg	< 3	< 3	< 3	< 3	< 3	< 3
4-CHLOROTOLUENE	253,000	3,600	ug/kg	< 0.8	< 1	< 1	< 0.9	< 1	< 1
4-METHYL-2-PENTANONE	3,360,000	4,600	ug/kg	< 3	< 3	< 3	< 3	< 3	< 3
ACETONE	63,000,000	48,000	ug/kg	**9 J**	**17 J**	< 7	**17 J**	< 8	< 7
BENZENE	5,400	52	ug/kg	< 0.4	< 0.5	< 0.5	< 0.5	< 0.6	< 0.5
BROMOBENZENE	180,000	720	ug/kg	< 0.8	< 1	< 1	< 0.9	< 1	< 1
BROMOCHLOROMETHANE	68,000	420	ug/kg	< 0.8	< 1	< 1	< 0.9	< 1	< 1
BROMODICHLOROMETHANE	1,400	440	ug/kg	< 0.8	< 1	< 1	< 0.9	< 1	< 1
BROMOFORM	220,000	420	ug/kg	< 0.8	< 1	< 1	< 0.9	< 1	< 1
BROMOMETHANE	3,200	36	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2
CARBON DISULFIDE	370,000	4,200	ug/kg	**2 J**	< 1	< 1	< 0.9	< 1	< 1
CARBON TETRACHLORIDE	3,000	38	ug/kg	< 0.8	< 1	< 1	< 0.9	< 1	< 1
CHLOROBENZENE	140,000	1,360	ug/kg	< 0.8	< 1	< 1	< 0.9	< 1	< 1
CHLOROETHANE	2,120,000	118,000	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2
CHLOROFORM	1,500	440	ug/kg	< 0.8	< 1	< 1	< 0.9	< 1	< 1
CHLOROMETHANE	50,000	980	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2
CIS-1,2-DICHLOROETHENE	200,000	420	ug/kg	< 0.8	< 1	< 1	< 0.9	< 1	< 1
CIS-1,3-DICHLOROPROPENE	8,300	3	ug/kg	< 0.8	< 1	< 1	< 0.9	< 1	< 1
CYCLOHEXANE	117,000	260,000	ug/kg	< 0.8	< 1	< 1	< 0.9	< 1	< 1
DIBROMOCHLOROMETHANE	3,300	420	ug/kg	< 0.8	< 1	< 1	< 0.9	< 1	< 1
DIBROMOMETHANE	11,000	38	ug/kg	< 0.8	< 1	< 1	< 0.9	< 1	< 1
DICHLORODIFLUOROMETHANE	40,000	6,000	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2
ETHYLBENZENE	27,000	15,600	ug/kg	< 0.8	< 1	< 1	< 0.9	< 1	< 1
FREON 113	910,000	2,600,000	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2
HEXACHLOROBUTADIENE	22,000	10	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2
ISOPROPYLBENZENE	268,000	12,800	ug/kg	< 0.8	< 1	< 1	< 0.9	< 1	< 1
M+P-XYLENE	250,000	3,600	ug/kg	< 0.8	< 1	< 1	< 0.9	< 1	< 1
METHYL ACETATE	29,000,000	64,000	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2
METHYL TERTIARY BUTYL ETHER	220,000	56	ug/kg	< 0.4	< 0.5	< 0.5	< 0.5	< 0.6	< 0.5
METHYLCYCLOHEXANE	--	NA	- -	< 0.8	< 1	< 1	< 0.9	< 1	< 1
METHYLENE CHLORIDE	53,000	26	ug/kg	< 2	< 2	< 2	**2 J**	< 2	**5 J**
N-BUTYLBENZENE	108,000	50,000	ug/kg	< 0.8	< 1	< 1	< 0.9	< 1	< 1
N-PROPYLBENZENE	264,000	19,800	ug/kg	< 0.8	< 1	< 1	< 0.9	< 1	< 1
NAPHTHALENE	18,000	9.4	ug/kg	< 0.8	< 1	< 1	< 0.9	< 1	< 1
O-XYLENE	300,000	3,800	ug/kg	< 0.8	< 1	< 1	< 0.9	< 1	< 1
P-ISOPROPYLTOLUENE	268,000	12,800	ug/kg	< 0.8	< 1	< 1	< 0.9	< 1	< 1
SEC-BUTYLBENZENE	268,000	12,800	ug/kg	< 0.8	< 1	< 1	< 0.9	< 1	< 1
STYRENE	867,000	2,200	ug/kg	< 0.8	< 1	< 1	< 0.9	< 1	< 1
TERT-BUTYLBENZENE	268,000	12,800	ug/kg	< 0.8	< 1	< 1	< 0.9	< 1	< 1
TETRACHLOROETHENE	2,600	46	ug/kg	< 0.8	< 1	< 1	< 0.9	< 1	< 1
TOLUENE	818,000	13,800	ug/kg	< 0.8	< 1	< 1	< 0.9	< 1	< 1
TRANS-1,2-DICHLOROETHENE	69,000	580	ug/kg	< 0.8	< 1	< 1	< 0.9	< 1	< 1
TRANS-1,3-DICHLOROPROPENE	8,300	3	ug/kg	< 0.8	< 1	< 1	< 0.9	< 1	< 1
TRICHLOROETHENE	2,000	36	ug/kg	< 0.8	< 1	< 1	< 0.9	< 1	< 1
TRICHLOROFLUOROMETHANE	340,000	13,800	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2
VINYL ACETATE	410,000	1,740	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2
VINYL CHLORIDE	1,700	13.8	ug/kg	< 0.8	< 1	< 1	< 0.9	< 1	< 1
SVOC (ug/kg)									
1,1'-BIPHENYL	21,000	174	ug/kg	< 18	< 20	< 18	**76**	< 21	< 21
1,2-DICHLOROBENZENE	376,000	11,600	ug/kg	< 0.8	< 1	< 1	< 0.9	< 1	< 1
1,3-DICHLOROBENZENE	12,000	1,440	ug/kg	< 0.8	< 1	< 1	< 0.9	< 1	< 1
1,4-DICHLOROBENZENE	12,000	1,440	ug/kg	< 0.8	< 1	< 1	< 0.9	< 1	< 1
1,4-DIOXANE	17,000	2.8	ug/kg	< 110	< 120	< 110	< 110	< 120	< 120
2,4,5-TRICHLOROPHENOL	6,200,000	66,000	ug/kg	< 18	< 20	< 18	< 19	< 21	< 21
2,4,6-TRICHLOROPHENOL	62,000	260	ug/kg	< 18	< 20	< 18	< 19	< 21	< 21
2,4-DICHLOROPHENOL	180,000	820	ug/kg	< 18	< 20	< 18	< 19	< 21	< 21
2,4-DIMETHYLPHENOL	1,200,000	6,400	ug/kg	< 18	< 20	< 18	< 19	< 21	< 21
2,4-DINITROPHENOL	120,000	680	ug/kg	< 360	< 410	< 360	< 380	< 410	< 410
2,4-DINITROTOLUENE	5,500	5.6	ug/kg	< 71	< 81	< 72	< 76	< 83	< 82
2,6-DINITROTOLUENE	62,000	400	ug/kg	< 18	< 20	< 18	< 19	< 21	< 21

TABLE 5-3
SWMU 12 Soil Data
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Analyte	Industrial RSL[1]	Protection of Groundwater SSLs[2]	Location	S12-SS01			S12-SS02		
			Sample ID	S12-SS01-0002-120611	S12-SS01-0305-120611	S12-SS01-0810-120611	S12-SS02-0002-120611	S12-SS02-0305-120611	S12-SS02-0810-120611
			Sample Depth (ft)	0 - 2	3 - 5	8 - 10	0 - 2	3 - 5	8 - 10
			Sample Date	12/6/2011	12/6/2011	12/6/2011	12/6/2011	12/6/2011	12/6/2011
			UNITS						
2-CHLORONAPHTHALENE	175,000	58,000	ug/kg	< 7	< 9	< 8	< 8	< 9	< 9
2-CHLOROPHENOL	510,000	1,140	ug/kg	< 18	< 20	< 18	< 19	< 21	< 21
2-METHYLNAPHTHALENE	368,000	2,800	ug/kg	< 4	< 4	< 4	**13 J**	< 4	< 4
2-METHYLPHENOL	3,100,000	11,600	ug/kg	< 18	< 20	< 18	< 19	< 21	< 21
2-NITROANILINE	600,000	1,240	ug/kg	< 18	< 20	< 18	< 19	< 21	< 21
2-NITROPHENOL	510,000	1,140	ug/kg	< 18	< 20	< 18	< 19	< 21	< 21
3,3'-DICHLOROBENZIDINE	3,800	14.2	ug/kg	< 110	< 120	< 110	< 110	< 120	< 120
3-NITROANILINE	600,000	1,240	ug/kg	< 71	< 81	< 72	< 76	< 83	< 82
4,6-DINITRO-2-METHYLPHENOL	4,900	40	ug/kg	< 180	< 200	< 180	< 190	< 210	< 210
4-BROMOPHENYL-PHENYLETHER	--	NA	- -	< 18	< 20	< 18	< 19	< 21	< 21
4-CHLORO-3-METHYLPHENOL	6,200,000	26,000	ug/kg	< 18	< 20	< 18	< 19	< 21	< 21
4-CHLOROANILINE	8,600	2.6	ug/kg	< 18	< 20	< 18	< 19	< 21	< 21
4-CHLOROPHENYL-PHENYLETHER	--	NA	- -	< 18	< 20	< 18	< 19	< 21	< 21
4-METHYLPHENOL	310,000	1,140	ug/kg	< 18	< 20	< 18	< 19	< 21	< 21
4-NITROANILINE	86,000	28	ug/kg	< 71	< 81	< 72	< 76	< 83	< 82
4-NITROPHENOL	24,000	1.58	ug/kg	< 180	< 200	< 180	< 190	< 210	< 210
ACENAPHTHENE	3,300,000	82,000	ug/kg	< 4	< 4	< 4	**5 J**	< 4	< 4
ACENAPHTHYLENE	3,300,000	82,000	ug/kg	< 4	< 4	< 4	< 4	< 4	< 4
ANTHRACENE	17,000,000	840,000	ug/kg	< 4	< 4	< 4	**6 J**	< 4	< 4
BENZO(A)ANTHRACENE	2,100	200	ug/kg	< 4	< 4	< 4	**20**	< 4	**6 J**
BENZO(A)PYRENE	210	4,800	ug/kg	< 4	< 4	< 4	**19 J**	< 4	**8 J**
BENZO(B)FLUORANTHENE	2,100	700	ug/kg	< 4	< 4	< 4	**32**	< 4	**11 J**
BENZO(G,H,I)PERYLENE	1,700,000	190,000	ug/kg	< 4	< 4	< 4	**13 J**	< 4	**6 J**
BENZO(K)FLUORANTHENE	21,000	7,000	ug/kg	< 4	< 4	< 4	**9 J**	< 4	**5 J**
BENZYL ALCOHOL	6,200,000	7,400	ug/kg	< 180	< 200	< 180	< 190	< 210	< 210
BIS(2-CHLOROETHOXY)METHANE	180,000	220	ug/kg	< 18	< 20	< 18	< 19	< 21	< 21
BIS(2-CHLOROETHYL)ETHER	1,000	0.062	ug/kg	< 18	< 20	< 18	< 19	< 21	< 21
BIS(2-ETHYLHEXYL)PHTHALATE	120,000	28,000	ug/kg	< 71	< 81	< 72	< 76	**98 J**	< 82
BUTYLBENZYLPHTHALATE	910,000	4,000	ug/kg	< 71	< 81	< 72	< 76	< 83	< 82
CARBAZOLE	--	NA	- -	< 18	< 20	< 18	< 19	< 21	< 21
CHRYSENE	210,000	22,000	ug/kg	< 4	< 4	< 4	**32**	< 4	**9 J**
DI-N-BUTYLPHTHALATE	6,200,000	34,000	ug/kg	< 71	< 81	< 72	< 76	< 83	< 82
DI-N-OCTYLPHTHALATE	--	NA	- -	< 71	< 81	< 72	< 76	< 83	< 82
DIBENZ(A,H)ANTHRACENE	210	220	ug/kg	< 4	< 4	< 4	< 4	< 4	< 4
DIBENZOFURAN	100,000	2,200	ug/kg	< 18	< 20	< 18	< 19	< 21	< 21
DIETHYLPHTHALATE	49,000,000	94,000	ug/kg	< 71	< 81	< 72	< 76	< 83	< 82
DIMETHYLPHTHALATE	--	NA	- -	< 71	< 81	< 72	< 76	< 83	< 82
FLUORANTHENE	2,200,000	1,400,000	ug/kg	< 4	< 4	< 4	**67**	< 4	**16 J**
FLUORENE	2,200,000	80,000	ug/kg	< 4	< 4	< 4	**7 J**	< 4	< 4
HEXACHLOROBENZENE	1,100	260	ug/kg	< 4	< 4	< 4	< 4	< 4	< 4
HEXACHLOROCYCLOPENTADIENE	370,000	3,200	ug/kg	< 180	< 200	< 180	< 190	< 210	< 210
HEXACHLOROETHANE	43,000	9.6	ug/kg	< 36	< 41	< 36	< 38	< 41	< 41
INDENO(1,2,3-CD)PYRENE	2,100	2400	ug/kg	< 4	< 4	< 4	**8 J**	< 4	**5 J**
ISOPHORONE	1,800,000	440	ug/kg	< 18	< 20	< 18	< 19	< 21	< 21
N-NITROSO-DI-N-PROPYLAMINE	250	0.14	ug/kg	< 18	< 20	< 18	< 19	< 21	< 21
N-NITROSODIPHENYLAMINE	350,000	1140	ug/kg	< 18	< 20	< 18	< 19	< 21	< 21
NITROBENZENE	24,000	1.58	ug/kg	< 18	< 20	< 18	< 19	< 21	< 21
PENTACHLOROPHENOL	2,700	200	ug/kg	< 36	< 41	< 36	< 38	< 41	< 41
PHENANTHRENE	17,000,000	840,000	ug/kg	**4 J**	< 4	< 4	**60**	< 4	**9 J**
PHENOL	18,000,000	52,000	ug/kg	< 18	< 20	< 18	< 19	< 21	< 21
PYRENE	1,700,000	190,000	ug/kg	< 4	< 4	< 4	**50**	< 4	**14 J**
METAL (MG/KG)									
ARSENIC	1.6	5.8	mg/kg	**8.45**	**10.5**	**7.48**	**12.3**	**13.5**	**9.76**
BARIUM	19,000	1640	mg/kg	**71.3**	**82.6**	**66.5**	**79**	**73.5**	**142**
CADMIUM	80	7.6	mg/kg	**0.189 J**	**0.119 J**	**0.231 J**	**0.198 J**	**0.0988 J**	**0.193 J**
CHROMIUM	150,000	560,000,000	mg/kg	**8.73**	**12.9**	**7.65**	**16.8**	**16.7**	**19.7**
LEAD	80	280	mg/kg	**3.54**	**9.38**	**4.43**	**9.01**	**10.8**	**11.5**
MERCURY	3.13	2	mg/kg	< 0.0075	**0.0253 J**	< 0.0073	**0.0257 J**	< 0.0082	< 0.0084
SELENIUM	510	5.2	mg/kg	< 0.707	< 0.812	< 0.724	**0.771 J**	< 0.809	< 0.821
SILVER	510	12	mg/kg	< 0.225	< 0.142	< 0.131	< 0.092	< 0.14	< 0.163
GENERAL CHEM (percent)									
MOISTURE	--	--	- -	**6.6**	**17.9**	**7.9**	**12.4**	**19.2**	**18.8**

Notes:
[1]USEPA Industrial Regional Screening Level (RSL) based on $1x10^{-6}$ or HQ = 0.1 (November 2011)
[2]USEPA Protection of Groundwater Soil Screening Level (SSL) based dilution attenuation factor of 20 (November 2011)
NA = Not analyzed
J = The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.
< = The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
mg/kg = Milligrams per Kilogram
ug/kg = Micrograms per Kilogram
Bold indicates the analyte was detected
Shading indicates the result exceeded industrial soil RSL
Box indicates the result exceeded protection of groundwater SSL

TABLE 5-4
SWMU 15 Soil Data
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Analyte	Industrial RSL[1]	Protection of Groundwater SSLs[2]	Location	S15-SS01						S15-SS02				
			Sample ID	HGR-121511-FD06	S15-SS01-0002-121511	HGR-121511-FD07	S15-SS01-0305-121511	HGR-121511-FD08	S15-SS01-0810-121511	S15-SS02-0002-121511	S15-SS02-0305-121511	S15-SS02-0810-121511	S15-SS02-1315-121511	S15-SS02-2022-121511
			Sample Depth (ft)	0 - 2	0 - 2	3 - 5	3 - 5	8 - 10	8 - 10	0 - 2	3 - 5	8 - 10	13 - 15	20 - 22
			Sample Date	12/15/2011	12/15/2011	12/15/2011	12/15/2011	12/15/2011	12/15/2011	12/15/2011	12/15/2011	12/15/2011	12/15/2011	12/15/2011
			UNITS											
VOC (ug/kg)														
1,1,1,2-TETRACHLOROETHANE	9,300	3.8	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 55	< 1	< 1
1,1,1-TRICHLOROETHANE	640,000	1,400	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 55	< 1	< 1
1,1,2,2-TETRACHLOROETHANE	2,800	0.52	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 55	< 1	< 1
1,1,2-TRICHLOROETHANE	680	32	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 55	< 1	< 1
1,1-DICHLOROETHANE	17,000	13.6	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 55	< 1	< 1
1,1-DICHLOROETHENE	110,000	50	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 55	< 1	< 1
1,1-DICHLOROPROPENE	110,000	50	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 55	< 1	< 1
1,2,3-TRICHLOROBENZENE	49,000	300	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 55	< 1	< 1
1,2,3-TRICHLOROPROPANE	95	0.0056	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 55	< 1	< 1
1,2,4-TRICHLOROBENZENE	27,000	4,000	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 55	< 1	< 1
1,2,4-TRIMETHYLBENZENE	26,000	420	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 55	< 1	< 1
1,2-DIBROMO-3-CHLOROPROPANE	69	1.72	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 110	< 2	< 2
1,2-DIBROMOETHANE	170	0.28	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 55	< 1	< 1
1,2-DICHLOROETHANE	2,200	28	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 55	< 1	< 1
1,2-DICHLOROPROPANE	4,700	34	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 55	< 1	< 1
1,3,5-TRIMETHYLBENZENE	182,000	2,400	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 55	< 1	< 1
1,3-DICHLOROPROPANE	1,490,000	1,980	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 55	< 1	< 1
2,2-DICHLOROPROPANE	4,700	34	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 55	< 1	< 1
2-BUTANONE	20,000,000	20,000	ug/kg	**27 J**	**11 J**	**6 J**	**6 J**	**9 J**	**12 J**	**6 J**	**18**	< 220	**13**	< 5
2-CHLOROTOLUENE	907,000	3,400	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 55	< 1	< 1
2-HEXANONE	140,000	158	ug/kg	< 3	< 3	< 3	< 3	< 4	< 4	< 3	< 3	< 170	< 3	< 4
4-CHLOROTOLUENE	253,000	3,600	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 55	< 1	< 1
4-METHYL-2-PENTANONE	3,360,000	4,600	ug/kg	< 3	< 3	< 3	< 3	< 4	< 4	< 3	< 3	< 170	< 3	< 4
ACETONE	63,000,000	48,000	ug/kg	**180 J**	**97 J**	**85 J**	**71 J**	**53 J**	**67 J**	**49 J**	**120 J**	< 390	**40 J**	< 8
BENZENE	5,400	52	ug/kg	< 0.5	< 0.6	< 0.5	< 0.5	< 0.6	< 0.6	< 0.5	< 0.5	< 28	< 0.5	< 0.6
BROMOBENZENE	180,000	720	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 55	< 1	< 1
BROMOCHLOROMETHANE	68,000	420	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 55	< 1	< 1
BROMODICHLOROMETHANE	1,400	440	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 55	< 1	< 1
BROMOFORM	220,000	420	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 55	< 1	< 1
BROMOMETHANE	3,200	36	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 110	< 2	< 2
CARBON DISULFIDE	370,000	4,200	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 55	< 1	< 1
CARBON TETRACHLORIDE	3,000	38	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 55	< 1	< 1
CHLOROBENZENE	140,000	1,360	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 55	< 1	< 1
CHLOROETHANE	2,120,000	118,000	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 110	< 2	< 2
CHLOROFORM	1,500	440	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 55	< 1	< 1
CHLOROMETHANE	50,000	980	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 110	< 2	< 2
CIS-1,2-DICHLOROETHENE	200,000	420	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 55	< 1	**2 J**
CIS-1,3-DICHLOROPROPENE	8,300	3	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 55	< 1	< 1
CYCLOHEXANE	117,000	260,000	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 55	< 1	< 1
DIBROMOCHLOROMETHANE	3,300	420	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 55	< 1	< 1
DIBROMOMETHANE	11,000	38	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 55	< 1	< 1
DICHLORODIFLUOROMETHANE	40,000	6,000	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 110	< 2	< 2
ETHYLBENZENE	27,000	15,600	ug/kg	< 1	< 1	< 1	< 1	< 1	**2 J**	< 0.9	< 1	< 55	< 1	< 1
FREON 113	910,000	2,600,000	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 110	< 2	< 2
HEXACHLOROBUTADIENE	22,000	10	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 110	< 2	< 2
ISOPROPYLBENZENE	268,000	12,800	ug/kg	< 1	< 1	< 1	< 1	**30**	**31**	< 0.9	< 1	**3000**	**140**	< 1
M+P-XYLENE	250,000	3,600	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 55	< 1	< 1
METHYL ACETATE	29,000,000	64,000	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	**160 J**	**11 J**	< 2
METHYL TERTIARY BUTYL ETHER	220,000	56	ug/kg	< 0.5	< 0.6	< 0.5	< 0.5	< 0.6	< 0.6	< 0.5	< 0.5	< 28	< 0.5	< 0.6
METHYLCYCLOHEXANE	--	NA	- -	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 55	< 1	< 1
METHYLENE CHLORIDE	53,000	26	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 110	< 2	< 2
N-BUTYLBENZENE	108,000	50,000	ug/kg	< 1	< 1	< 1	< 1	**1 J**	**1 J**	< 0.9	< 1	< 55	**2 J**	< 1
N-PROPYLBENZENE	264,000	19,800	ug/kg	< 1	< 1	< 1	< 1	**1 J**	**2 J**	< 0.9	< 1	**380**	**15**	< 1
NAPHTHALENE	18,000	9.4	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 55	< 1	< 1
O-XYLENE	300,000	3,800	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 55	< 1	< 1
P-ISOPROPYLTOLUENE	268,000	12,800	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 55	< 1	< 1
SEC-BUTYLBENZENE	268,000	12,800	ug/kg	< 1	< 1	< 1	< 1	**41**	**46**	< 0.9	< 1	**2900**	**90**	< 1
STYRENE	867,000	2,200	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 55	< 1	< 1
TERT-BUTYLBENZENE	268,000	12,800	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 55	< 1	< 1
TETRACHLOROETHENE	2,600	46	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 55	< 1	< 1
TOLUENE	818,000	13,800	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 55	< 1	< 1
TRANS-1,2-DICHLOROETHENE	69,000	580	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 55	< 1	< 1
TRANS-1,3-DICHLOROPROPENE	8,300	3	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 55	< 1	< 1
TRICHLOROETHENE	2,000	36	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 55	< 1	< 1
TRICHLOROFLUOROMETHANE	340,000	13,800	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 110	< 2	< 2
VINYL ACETATE	410,000	1,740	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 110	< 2	< 2
VINYL CHLORIDE	1,700	13.8	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 55	< 1	< 1
SVOC (ug/kg)														
1,1'-BIPHENYL	21,000	174	ug/kg	< 20	< 20	**19 J**	< 19	< 21	< 21	< 19	< 20	< 22	< 20	< 21
1,2-DICHLOROBENZENE	376,000	11,600	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 55	< 1	< 1
1,3-DICHLOROBENZENE	12,000	1,440	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 55	< 1	< 1
1,4-DICHLOROBENZENE	12,000	1,440	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 55	< 1	< 1
1,4-DIOXANE	17,000	2.8	ug/kg	< 120	< 120	< 120	< 120	< 120	< 120	< 110	< 120	< 130	< 120	< 120
2,4,5-TRICHLOROPHENOL	6,200,000	66,000	ug/kg	< 20	< 20	< 19	< 19	< 21	< 21	< 19	< 20	< 22	< 20	< 21
2,4,6-TRICHLOROPHENOL	62,000	260	ug/kg	< 20	< 20	< 19	< 19	< 21	< 21	< 19	< 20	< 22	< 20	< 21
2,4-DICHLOROPHENOL	180,000	820	ug/kg	< 20	< 20	< 19	< 19	< 21	< 21	< 19	< 20	< 22	< 20	< 21
2,4-DIMETHYLPHENOL	1,200,000	6,400	ug/kg	< 20	< 20	< 19	< 19	< 21	< 21	< 19	< 20	< 22	< 20	< 21
2,4-DINITROPHENOL	120,000	680	ug/kg	< 400	< 400	< 390	< 380	< 410	< 410	< 380	< 390	< 440	< 400	< 410
2,4-DINITROTOLUENE	5,500	5.6	ug/kg	< 81	< 80	< 78	< 77	< 83	< 83	< 75	< 79	< 87	< 80	< 82

TABLE 5-4
SWMU 15 Soil Data
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Analyte	Industrial RSL[1]	Protection of Groundwater SSLs[2]	Location	S15-SS01						S15-SS02				
			Sample ID	HGR-121511-FD06	S15-SS01-0002-121511	HGR-121511-FD07	S15-SS01-0305-121511	HGR-121511-FD08	S15-SS01-0810-121511	S15-SS02-0002-121511	S15-SS02-0305-121511	S15-SS02-0810-121511	S15-SS02-1315-121511	S15-SS02-2022-121511
			Sample Depth (ft)	0 - 2	0 - 2	3 - 5	3 - 5	8 - 10	8 - 10	0 - 2	3 - 5	8 - 10	13 - 15	20 - 22
			Sample Date	12/15/2011	12/15/2011	12/15/2011	12/15/2011	12/15/2011	12/15/2011	12/15/2011	12/15/2011	12/15/2011	12/15/2011	12/15/2011
			UNITS											
2,6-DINITROTOLUENE	62,000	400	ug/kg	< 20	< 20	< 19	< 19	< 21	< 21	< 19	< 20	< 22	< 20	< 21
2-CHLORONAPHTHALENE	175,000	58,000	ug/kg	< 8	< 8	< 8	< 8	< 9	< 9	< 8	< 8	< 9	< 8	< 9
2-CHLOROPHENOL	510,000	1,140	ug/kg	< 20	< 20	< 19	< 19	< 21	< 21	< 19	< 20	< 22	< 20	< 21
2-METHYLNAPHTHALENE	368,000	2,800	ug/kg	**8 J**	**18 J**	**72**	**30**	< 4	**5 J**	< 4	**4 J**	**6 J**	< 4	< 4
2-METHYLPHENOL	3,100,000	11,600	ug/kg	< 20	< 20	< 19	< 19	< 21	< 21	< 19	< 20	< 22	< 20	< 21
2-NITROANILINE	600,000	1,240	ug/kg	< 20	< 20	< 19	< 19	< 21	< 21	< 19	< 20	< 22	< 20	< 21
2-NITROPHENOL	510,000	1,140	ug/kg	< 20	< 20	< 19	< 19	< 21	< 21	< 19	< 20	< 22	< 20	< 21
3,3'-DICHLOROBENZIDINE	3,800	14.2	ug/kg	< 120	< 120	< 120	< 120	< 120	< 120	< 110	< 120	< 130	< 120	< 120
3-NITROANILINE	600,000	1,240	ug/kg	< 81	< 80	< 78	< 77	< 83	< 83	< 75	< 79	< 87	< 80	< 82
4,6-DINITRO-2-METHYLPHENOL	4,900	40	ug/kg	< 200	< 200	< 190	< 190	< 210	< 210	< 190	< 200	< 220	< 200	< 210
4-BROMOPHENYL-PHENYLETHER	--	NA	- -	< 20	< 20	< 19	< 19	< 21	< 21	< 19	< 20	< 22	< 20	< 21
4-CHLORO-3-METHYLPHENOL	6,200,000	26,000	ug/kg	< 20	< 20	< 19	< 19	< 21	< 21	< 19	< 20	< 22	< 20	< 21
4-CHLOROANILINE	8,600	2.6	ug/kg	< 20	< 20	< 19	< 19	< 21	< 21	< 19	< 20	< 22	< 20	< 21
4-CHLOROPHENYL-PHENYLETHER	--	NA	- -	< 20	< 20	< 19	< 19	< 21	< 21	< 19	< 20	< 22	< 20	< 21
4-METHYLPHENOL	310,000	1,140	ug/kg	< 20	< 20	< 19	< 19	< 21	< 21	< 19	< 20	< 22	< 20	< 21
4-NITROANILINE	86,000	28	ug/kg	< 81	< 80	< 78	< 77	< 83	< 83	< 75	< 79	< 87	< 80	< 82
4-NITROPHENOL	24,000	1.58	ug/kg	< 200	< 200	< 190	< 190	< 210	< 210	< 190	< 200	< 220	< 200	< 210
ACENAPHTHENE	3,300,000	82,000	ug/kg	**7 J**	**12 J**	**66**	**23**	< 4	< 4	**4 J**	< 4	**5 J**	< 4	< 4
ACENAPHTHYLENE	3,300,000	82,000	ug/kg	**9 J**	**7 J**	**17 J**	**11 J**	< 4	< 4	**5 J**	**4 J**	**10 J**	< 4	< 4
ANTHRACENE	17,000,000	840,000	ug/kg	**14 J**	**41**	**29**	**19 J**	< 4	**5 J**	**10 J**	**6 J**	**13 J**	< 4	< 4
BENZO(A)ANTHRACENE	2,100	200	ug/kg	**54 J**	**110**	**80 J**	**60**	< 4	**16 J**	**40**	**21**	**51**	< 4	< 4
BENZO(A)PYRENE	210	4,800	ug/kg	**61**	**110**	**110**	**66**	< 4	**19 J**	**41**	**24**	**67**	< 4	< 4
BENZO(B)FLUORANTHENE	2,100	700	ug/kg	**88 J**	**170 J**	**160**	**98**	< 4	**29**	**67**	**32**	**110**	< 4	< 4
BENZO(G,H,I)PERYLENE	1,700,000	190,000	ug/kg	**48**	**80**	**77**	**49**	< 4	**16 J**	**31**	**20 J**	**54**	< 4	< 4
BENZO(K)FLUORANTHENE	21,000	7,000	ug/kg	**39**	**62**	**61**	**37**	< 4	**12 J**	**24**	**17 J**	**37**	< 4	< 4
BENZYL ALCOHOL	6,200,000	7,400	ug/kg	< 200	< 200	< 190	< 190	< 210	< 210	< 190	< 200	< 220	< 200	< 210
BIS(2-CHLOROETHOXY)METHANE	180,000	220	ug/kg	< 20	< 20	< 19	< 19	< 21	< 21	< 19	< 20	< 22	< 20	< 21
BIS(2-CHLOROETHYL)ETHER	1,000	0.062	ug/kg	< 20	< 20	< 19	< 19	< 21	< 21	< 19	< 20	< 22	< 20	< 21
BIS(2-ETHYLHEXYL)PHTHALATE	120,000	28,000	ug/kg	< 81	< 80	< 78	< 77	< 83	< 83	< 75	< 79	< 87	< 80	< 82
BUTYLBENZYLPHTHALATE	910,000	4,000	ug/kg	< 81	< 80	< 78	< 77	< 83	< 83	< 75	< 79	< 87	< 80	< 82
CARBAZOLE	--	NA	- -	< 20	**23 J**	**30 J**	< 19	< 21	< 21	< 19	< 20	< 22	< 20	< 21
CHRYSENE	210,000	22,000	ug/kg	**56**	**120**	**110**	**72**	< 4	**20 J**	**43**	**26**	**68**	< 4	< 4
DI-N-BUTYLPHTHALATE	6,200,000	34,000	ug/kg	< 81	< 80	< 78	< 77	< 83	< 83	< 75	< 79	< 87	< 80	< 82
DI-N-OCTYLPHTHALATE	--	NA	- -	< 81	< 80	< 78	< 77	< 83	< 83	< 75	< 79	< 87	< 80	< 82
DIBENZ(A,H)ANTHRACENE	210	220	ug/kg	**20 J**	**13 J**	**15 J**	**8 J**	< 4	< 4	**5 J**	< 4	**7 J**	< 4	< 4
DIBENZOFURAN	100,000	2,200	ug/kg	< 20	< 20	**30 J**	< 19	< 21	< 21	< 19	< 20	< 22	< 20	< 21
DIETHYLPHTHALATE	49,000,000	94,000	ug/kg	< 81	< 80	< 78	< 77	< 83	< 83	< 75	< 79	< 87	< 80	< 82
DIMETHYLPHTHALATE	--	NA	- -	< 81	< 80	< 78	< 77	< 83	< 83	< 75	< 79	< 87	< 80	< 82
FLUORANTHENE	2,200,000	1,400,000	ug/kg	**120 J**	**280 J**	**290**	**180**	< 4	**54**	**97**	**62**	**180**	< 4	< 4
FLUORENE	2,200,000	80,000	ug/kg	**5 J**	**15 J**	**41**	**18 J**	< 4	< 4	< 4	< 4	**10 J**	< 4	< 4
HEXACHLOROBENZENE	1,100	260	ug/kg	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4
HEXACHLOROCYCLOPENTADIENE	370,000	3,200	ug/kg	< 200	< 200	< 190	< 190	< 210	< 210	< 190	< 200	< 220	< 200	< 210
HEXACHLOROETHANE	43,000	9.6	ug/kg	< 40	< 40	< 39	< 38	< 41	< 41	< 38	< 39	< 44	< 40	< 41
INDENO(1,2,3-CD)PYRENE	2,100	2400	ug/kg	**38**	**73**	**66**	**45**	< 4	**15 J**	**31**	**15 J**	**44**	< 4	< 4
ISOPHORONE	1,800,000	440	ug/kg	< 20	< 20	< 19	< 19	< 21	< 21	< 19	< 20	< 22	< 20	< 21
N-NITROSO-DI-N-PROPYLAMINE	250	0.14	ug/kg	< 20	< 20	< 19	< 19	< 21	< 21	< 19	< 20	< 22	< 20	< 21
N-NITROSODIPHENYLAMINE	350,000	1140	ug/kg	< 20	< 20	< 19	< 19	< 21	< 21	< 19	< 20	< 22	< 20	< 21
NITROBENZENE	24,000	1.58	ug/kg	< 20	< 20	< 19	< 19	< 21	**66**	< 19	< 20	< 22	< 20	< 21
PENTACHLOROPHENOL	2,700	200	ug/kg	< 40	< 40	< 39	< 38	< 41	< 41	< 38	< 39	< 44	< 40	< 41
PHENANTHRENE	17,000,000	840,000	ug/kg	**69 J**	**180 J**	**220**	**140**	< 4	**34**	**49**	**36**	**100**	< 4	**5 J**
PHENOL	18,000,000	52,000	ug/kg	< 20	< 20	< 19	< 19	< 21	< 21	< 19	< 20	< 22	< 20	< 21
PYRENE	1,700,000	190,000	ug/kg	**94 J**	**230 J**	**210**	**140**	< 4	**41**	**78**	**50**	**150**	< 4	< 4
METAL (MG/KG)														
ARSENIC	1.6	5.8	mg/kg	**10.3**	**10.7**	**8.52**	**7.37**	**7.54**	**6.69**	**7.31**	**7.66**	**7.73**	**4.02**	**6**
BARIUM	19,000	1640	mg/kg	**121**	**129**	**134**	**134**	**176**	**137**	**134**	**128**	**204**	**168**	**113**
CADMIUM	80	7.6	mg/kg	**0.156 J**	**0.443 J**	**0.17 J**	**0.578**	**0.114 J**	**0.577 J**	**0.409 J**	**0.517 J**	**0.481 J**	**0.349 J**	**0.631**
CHROMIUM	150,000	560,000,000	mg/kg	**21.9**	**14.7**	**16.6**	**15.4**	**18.9**	**17.3**	**22.9**	**17**	**24.9**	**28.6**	**22.3**
LEAD	80	280	mg/kg	**20.5 J**	**9.72 J**	**20.1 J**	**61.3 J**	**13.9**	**12.2**	**14.3**	**13.4**	**20.5**	**17.3**	**15**
MERCURY	3.13	2	mg/kg	**0.0287 J**	**0.035 J**	**0.0228 J**	**0.0438 J**	**0.0256 J**	**0.0224 J**	**0.0245 J**	**0.0173 J**	**0.0328 J**	< 0.0083	**0.0174 J**
SELENIUM	510	5.2	mg/kg	< 0.81	< 0.788	**0.779 J**	< 0.78	< 0.826	< 0.828	< 0.757	< 0.81	< 0.863	< 0.81	< 0.808
SILVER	510	12	mg/kg	< 0.0989	< 0.0962	< 0.0948	< 0.0952	< 0.101	< 0.101	< 0.0924	< 0.0988	< 0.105	< 0.0989	< 0.0986
GENERAL CHEM (percent)														
MOISTURE	--		- -	**17.7**	**17.8**	**14.2**	**13.7**	**19.3**	**20.3**	**12.8**	**16**	**24.2**	**16.9**	**19.8**

Notes:
[1]USEPA Industrial Regional Screening Level (RSL) based on 1x10^{-6} or HQ = 0.1 (November 2011)
[2]USEPA Protection of Groundwater Soil Screening Level (SSL) based dilution attenuation factor of 20 (November 2011)
NA = Not analyzed
J = The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.
R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet the quality control criteria. The presence or absence of the analyte cannot be verified.
< = The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was below the reported sample quantitation limit. However, the reported value is approximate.
mg/kg = Milligrams per Kilogram
ug/kg = Micrograms per Kilogram
Bold indicates the analyte was detected
Shading indicates the result exceeded industrial soil RSL
Box indicates the result exceeded protection of groundwater SSL

TABLE 5-4
SWMU 15 Soil Data
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

	S15-SS03						S15-SS04					
	HGR-121511-FD04	S15-SS03-0002-121511	S15-SS03-0305-121511	HGR-121511-FD05	S15-SS03-0810-121511	S15-SS03-1315-121511	HGR-121511-FD01	S15-SS04-0002-121511	HGR-121511-FD02	S15-SS04-0305-121511	HGR-121511-FD03	S15-SS04-0810-121511
	0 - 2	0 - 2	3 - 5	8 - 10	8 - 10	13 - 15	0 - 2	0 - 2	3 - 5	3 - 5	8 - 10	8 - 10
	12/15/2011	12/15/2011	12/15/2011	12/15/2011	12/15/2011	12/15/2011	12/15/2011	12/15/2011	12/15/2011	12/15/2011	12/15/2011	12/15/2011
Analyte												
VOC (ug/kg)												
1,1,1,2-TETRACHLOROETHANE	< 1	< 1	< 1	< 56	< 55	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,1-TRICHLOROETHANE	< 1	< 1	< 1	< 56	< 55	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2,2-TETRACHLOROETHANE	< 1	< 1	< 1	< 56	< 55	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2-TRICHLOROETHANE	< 1	< 1	< 1	< 56	< 55	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1-DICHLOROETHANE	< 1	< 1	< 1	< 56	< 55	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1-DICHLOROETHENE	< 1	< 1	< 1	< 56	< 55	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1-DICHLOROPROPENE	< 1	< 1	< 1	< 56	< 55	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2,3-TRICHLOROBENZENE	< 1	< 1	< 1	< 56	**140 J**	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2,3-TRICHLOROPROPANE	< 1	< 1	< 1	< 56	< 55	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2,4-TRICHLOROBENZENE	< 1	< 1	< 1	< 56	**100 J**	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2,4-TRIMETHYLBENZENE	< 1	< 1	< 1	< 56	< 55	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2-DIBROMO-3-CHLOROPROPANE	< 2	< 3	< 2	< 110	< 110	< 2	< 2	< 2	< 2	< 2	< 3	< 2
1,2-DIBROMOETHANE	< 1	< 1	< 1	< 56	< 55	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2-DICHLOROETHANE	< 1	< 1	< 1	< 56	< 55	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2-DICHLOROPROPANE	< 1	< 1	< 1	< 56	< 55	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,3,5-TRIMETHYLBENZENE	< 1	< 1	< 1	< 56	< 55	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,3-DICHLOROPROPANE	< 1	< 1	< 1	< 56	< 55	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2,2-DICHLOROPROPANE	< 1	< 1	< 1	< 56	< 55	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2-BUTANONE	**37 J**	< 5	< 4	< 230	< 220	< 4	< 4	< 5	< 4	< 4	**6 J**	**5 J**
2-CHLOROTOLUENE	< 1	< 1	< 1	< 56	< 55	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2-HEXANONE	**9 J**	< 4	< 3	< 170	< 170	< 3	< 3	< 3	< 3	< 3	< 4	< 3
4-CHLOROTOLUENE	< 1	< 1	< 1	< 56	< 55	< 1	< 1	< 1	< 1	< 1	< 1	< 1
4-METHYL-2-PENTANONE	< 4	< 4	< 3	< 170	< 170	< 3	< 3	< 3	< 3	< 3	< 4	< 3
ACETONE	**140 J**	**18 J**	**19 J**	< 400	< 390	**11 J**	**15 J**	**25 J**	**31 J**	**12 J**	**42 J**	**32 J**
BENZENE	< 0.6	< 0.6	< 0.5	**280 J**	< 28	< 0.6	< 0.5	< 0.6	< 0.5	< 0.5	< 0.7	< 0.5
BROMOBENZENE	< 1	< 1	< 1	< 56	< 55	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOCHLOROMETHANE	< 1	< 1	< 1	< 56	< 55	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMODICHLOROMETHANE	< 1	< 1	< 1	< 56	< 55	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOFORM	< 1	< 1	< 1	< 56	< 55	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	< 2	< 3	< 2	< 110	< 110	< 2	< 2	< 2	< 2	< 2	< 3	< 2
CARBON DISULFIDE	**2 J**	**3 J**	**1 J**	< 56	< 55	< 1	**9**	**11**	< 1	< 1	**8**	**9**
CARBON TETRACHLORIDE	< 1	< 1	< 1	< 56	< 55	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROBENZENE	< 1	< 1	< 1	< 56	< 55	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	< 2	< 3	< 2	< 110	< 110	< 2	< 2	< 2	< 2	< 2	< 3	< 2
CHLOROFORM	< 1	< 1	< 1	< 56	< 55	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	< 2	< 3	< 2	< 110	< 110	< 2	< 2	< 2	< 2	< 2	< 3	< 2
CIS-1,2-DICHLOROETHENE	< 1	< 1	< 1	< 56	< 55	< 1	< 1	< 1	< 1	< 1	< 1	**1 J**
CIS-1,3-DICHLOROPROPENE	< 1	< 1	< 1	< 56	< 55	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CYCLOHEXANE	< 1	< 1	< 1	< 56	< 55	< 1	< 1	< 1	< 1	< 1	< 1	< 1
DIBROMOCHLOROMETHANE	< 1	< 1	< 1	< 56	< 55	< 1	< 1	< 1	< 1	< 1	< 1	< 1
DIBROMOMETHANE	< 1	< 1	< 1	< 56	< 55	< 1	< 1	< 1	< 1	< 1	< 1	< 1
DICHLORODIFLUOROMETHANE	< 2	< 3	< 2	< 110	< 110	< 2	< 2	< 2	< 2	< 2	< 3	< 2
ETHYLBENZENE	< 1	< 1	**4 J**	**110 J**	**330**	< 1	< 1	< 1	< 1	< 1	< 1	< 1
FREON 113	< 2	< 3	< 2	< 110	< 110	< 2	< 2	< 2	< 2	< 2	< 3	< 2
HEXACHLOROBUTADIENE	< 2	< 3	< 2	< 110	< 110	< 2	< 2	< 2	< 2	< 2	< 3	< 2
ISOPROPYLBENZENE	< 1	< 1	< 1	**1400 J**	**1900**	**66**	< 1	< 1	< 1	< 1	< 1	< 1
M+P-XYLENE	< 1	< 1	< 1	< 56	< 55	< 1	< 1	< 1	< 1	< 1	< 1	< 1
METHYL ACETATE	< 2	< 3	< 2	**120 J**	**170 J**	< 2	< 2	< 2	< 2	< 2	< 3	< 2
METHYL TERTIARY BUTYL ETHER	< 0.6	< 0.6	< 0.5	< 28	< 28	< 0.6	< 0.5	< 0.6	< 0.5	< 0.5	< 0.7	< 0.5
METHYLCYCLOHEXANE	< 1	< 1	< 1	< 56	< 55	< 1	< 1	< 1	< 1	< 1	< 1	< 1
METHYLENE CHLORIDE	**3 J**	< 3	< 2	< 110	< 110	< 2	< 2	< 2	< 2	< 2	< 3	< 2
N-BUTYLBENZENE	< 1	< 1	< 1	< 56	**89 J**	**3 J**	< 1	< 1	< 1	< 1	< 1	< 1
N-PROPYLBENZENE	< 1	< 1	< 1	**220 J**	**360**	**4 J**	< 1	< 1	< 1	< 1	< 1	< 1
NAPHTHALENE	< 1	< 1	< 1	< 56	**68 J**	< 1	< 1	< 1	< 1	< 1	< 1	< 1
O-XYLENE	< 1	< 1	< 1	< 56	< 55	< 1	< 1	< 1	< 1	< 1	< 1	< 1
P-ISOPROPYLTOLUENE	< 1	< 1	< 1	< 56	< 55	< 1	< 1	< 1	< 1	< 1	< 1	< 1
SEC-BUTYLBENZENE	< 1	< 1	**2 J**	**2000 J**	**2600**	**120**	< 1	< 1	< 1	< 1	< 1	< 1
STYRENE	< 1	< 1	< 1	< 56	< 55	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TERT-BUTYLBENZENE	< 1	< 1	< 1	< 56	< 55	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TETRACHLOROETHENE	< 1	< 1	< 1	< 56	< 55	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TOLUENE	< 1	< 1	< 1	**81 J**	< 55	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1,2-DICHLOROETHENE	< 1	< 1	< 1	< 56	< 55	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1,3-DICHLOROPROPENE	< 1	< 1	< 1	< 56	< 55	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROETHENE	< 1	< 1	< 1	< 56	< 55	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	< 2	< 3	< 2	< 110	< 110	< 2	< 2	< 2	< 2	< 2	< 3	< 2
VINYL ACETATE	< 2	< 3	< 2	< 110	< 110	< 2	< 2	< 2	< 2	< 2	< 3	< 2
VINYL CHLORIDE	< 1	< 1	< 1	< 56	< 55	< 1	< 1	< 1	< 1	< 1	< 1	< 1
SVOC (ug/kg)												
1,1'-BIPHENYL	< 180	< 180	< 20	< 21	< 21	< 20	**66**	**53**	< 20	< 20	< 21	< 21
1,2-DICHLOROBENZENE	< 1	< 1	< 1	< 56	< 55	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,3-DICHLOROBENZENE	< 1	< 1	< 1	< 56	< 55	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,4-DICHLOROBENZENE	< 1	< 1	< 1	< 56	< 55	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,4-DIOXANE	< 1100	< 1100	< 120	< 120	< 120	< 120	< 110	< 120	< 120	< 120	< 130	< 120
2,4,5-TRICHLOROPHENOL	< 180	< 180	< 20	< 21	< 21	< 20	< 19	< 19	< 20	< 20	< 21	< 21
2,4,6-TRICHLOROPHENOL	< 180	< 180	< 20	< 21	< 21	< 20	< 19	< 19	< 20	< 20	< 21	< 21
2,4-DICHLOROPHENOL	< 180	< 180	< 20	< 21	< 21	< 20	< 19	< 19	< 20	< 20	< 21	< 21
2,4-DIMETHYLPHENOL	< 180	< 180	< 20	< 21	< 21	< 20	< 19	< 19	< 20	< 20	< 21	< 21
2,4-DINITROPHENOL	< 3700	< 3600	< 400	< 410	< 420	< 400	< 380	**R**	< 400	< 400	< 420	< 420
2,4-DINITROTOLUENE	< 730	< 710	< 79	< 82	< 83	< 81	< 75	< 78	< 79	< 80	< 83	< 83

TABLE 5-4
SWMU 15 Soil Data
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

	S15-SS03						S15-SS04					
	HGR-121511-FD04	S15-SS03-0002-121511	S15-SS03-0305-121511	HGR-121511-FD05	S15-SS03-0810-121511	S15-SS03-1315-121511	HGR-121511-FD01	S15-SS04-0002-121511	HGR-121511-FD02	S15-SS04-0305-121511	HGR-121511-FD03	S15-SS04-0810-121511
	0 - 2	0 - 2	3 - 5	8 - 10	8 - 10	13 - 15	0 - 2	0 - 2	3 - 5	3 - 5	8 - 10	8 - 10
	12/15/2011	12/15/2011	12/15/2011	12/15/2011	12/15/2011	12/15/2011	12/15/2011	12/15/2011	12/15/2011	12/15/2011	12/15/2011	12/15/2011
Analyte												
2,6-DINITROTOLUENE	< 180	< 180	< 20	< 21	< 21	< 20	< 19	< 19	< 20	< 20	< 21	< 21
2-CHLORONAPHTHALENE	< 77	< 75	< 8	< 9	< 9	< 8	< 8	< 8	< 8	< 8	< 9	< 9
2-CHLOROPHENOL	< 180	< 180	< 20	< 21	< 21	< 20	< 19	< 19	< 20	< 20	< 21	< 21
2-METHYLNAPHTHALENE	< 37	< 36	**8 J**	**4 J**	< 4	< 4	**72**	**56**	**6 J**	< 4	**9 J**	**23**
2-METHYLPHENOL	< 180	< 180	< 20	< 21	< 21	< 20	< 19	< 19	< 20	< 20	< 21	< 21
2-NITROANILINE	< 180	< 180	< 20	< 21	< 21	< 20	< 19	< 19	< 20	< 20	< 21	< 21
2-NITROPHENOL	< 180	< 180	< 20	< 21	< 21	< 20	< 19	< 19	< 20	< 20	< 21	< 21
3,3'-DICHLOROBENZIDINE	< 1100	< 1100	< 120	< 120	< 120	< 120	< 110	< 120	< 120	< 120	< 130	< 120
3-NITROANILINE	< 730	< 710	< 79	< 82	< 83	< 81	< 75	< 78	< 79	< 80	< 83	< 83
4,6-DINITRO-2-METHYLPHENOL	< 1800	< 1800	< 200	< 210	< 210	< 200	< 190	**R**	< 200	< 200	< 210	< 210
4-BROMOPHENYL-PHENYLETHER	< 180	< 180	< 20	< 21	< 21	< 20	< 19	< 19	< 20	< 20	< 21	< 21
4-CHLORO-3-METHYLPHENOL	< 180	< 180	< 20	< 21	< 21	< 20	< 19	< 19	< 20	< 20	< 21	< 21
4-CHLOROANILINE	< 180	< 180	< 20	< 21	< 21	< 20	< 19	< 19	< 20	< 20	< 21	< 21
4-CHLOROPHENYL-PHENYLETHER	< 180	< 180	< 20	< 21	< 21	< 20	< 19	< 19	< 20	< 20	< 21	< 21
4-METHYLPHENOL	< 180	< 180	< 20	< 21	< 21	< 20	< 19	< 19	< 20	< 20	< 21	< 21
4-NITROANILINE	< 730	< 710	< 79	< 82	< 83	< 81	< 75	< 78	< 79	< 80	< 83	< 83
4-NITROPHENOL	< 1800	< 1800	< 200	< 210	< 210	< 200	< 190	< 190	< 200	< 200	< 210	< 210
ACENAPHTHENE	**99 J**	**140 J**	**15 J**	< 4	< 4	< 4	**35**	**30**	**21**	**16 J**	< 4	< 4
ACENAPHTHYLENE	**120 J**	**230**	**10 J**	**6 J**	**8 J**	< 4	**13 J**	**10 J**	**16 J**	**5 J**	< 4	< 4
ANTHRACENE	**630**	**1100**	**21**	**5 J**	**9 J**	< 4	**70**	**62**	**65**	**17 J**	< 4	< 4
BENZO(A)ANTHRACENE	**3400 J**	**6100 J**	**81**	**19 J**	**47**	< 4	**180**	**150**	**150 J**	**37 J**	**5 J**	**10 J**
BENZO(A)PYRENE	**3000 J**	**6500 J**	**97**	**27**	**64**	< 4	**180**	**150**	**160 J**	**41 J**	**6 J**	**10 J**
BENZO(B)FLUORANTHENE	**4700 J**	**8700 J**	**110**	**36**	**79**	< 4	**250**	**220**	**210 J**	**50 J**	**7 J**	**15 J**
BENZO(G,H,I)PERYLENE	**1700 J**	**4700 J**	**64**	**22**	**45**	< 4	**120**	**100**	**110 J**	**27 J**	**4 J**	**9 J**
BENZO(K)FLUORANTHENE	**2000 J**	**3700 J**	**62**	**15 J**	**40**	< 4	**100**	**84**	**85**	**26**	**4 J**	**5 J**
BENZYL ALCOHOL	< 1800	< 1800	< 200	< 210	< 210	< 200	< 190	< 190	< 200	< 200	< 210	< 210
BIS(2-CHLOROETHOXY)METHANE	< 180	< 180	< 20	< 21	< 21	< 20	< 19	< 19	< 20	< 20	< 21	< 21
BIS(2-CHLOROETHYL)ETHER	< 180	< 180	< 20	< 21	< 21	< 20	< 19	< 19	< 20	< 20	< 21	< 21
BIS(2-ETHYLHEXYL)PHTHALATE	< 730	< 710	< 79	< 82	< 83	< 81	< 75	< 78	< 79	< 80	< 83	< 83
BUTYLBENZYLPHTHALATE	< 730	< 710	< 79	< 82	< 83	< 81	< 75	< 78	< 79	< 80	< 83	< 83
CARBAZOLE	**370**	**480**	< 20	< 21	< 21	< 20	**26 J**	**23 J**	**30 J**	< 20	< 21	< 21
CHRYSENE	**3700**	**6000**	**88**	**27**	**61**	< 4	**190**	**180**	**150 J**	**45 J**	**7 J**	**12 J**
DI-N-BUTYLPHTHALATE	< 730	< 710	< 79	< 82	< 83	< 81	< 75	< 78	< 79	< 80	< 83	< 83
DI-N-OCTYLPHTHALATE	< 730	< 710	< 79	< 82	< 83	< 81	< 75	< 78	< 79	< 80	< 83	< 83
DIBENZ(A,H)ANTHRACENE	**360 J**	**860 J**	**10 J**	< 4	**6 J**	< 4	**21**	**19 J**	**16 J**	**4 J**	< 4	< 4
DIBENZOFURAN	< 180	**220 J**	< 20	< 21	< 21	< 20	**44**	**40**	**27 J**	< 20	< 21	< 21
DIETHYLPHTHALATE	< 730	< 710	< 79	< 82	< 83	< 81	< 75	< 78	< 79	< 80	< 83	< 83
DIMETHYLPHTHALATE	< 730	< 710	< 79	< 82	< 83	< 81	< 75	< 78	< 79	< 80	< 83	< 83
FLUORANTHENE	**10000**	**15000**	**230**	**66 J**	**160 J**	< 4	**430**	**500**	**460 J**	**110 J**	**12 J**	**20 J**
FLUORENE	**88 J**	**140 J**	**24**	< 4	**7 J**	< 4	**29**	**25**	**38**	**17 J**	< 4	< 4
HEXACHLOROBENZENE	< 37	< 36	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4
HEXACHLOROCYCLOPENTADIENE	< 1800	< 1800	< 200	< 210	< 210	< 200	< 190	**R**	< 200	< 200	< 210	< 210
HEXACHLOROETHANE	< 370	< 360	< 40	< 41	< 42	< 40	< 38	< 39	< 40	< 40	< 42	< 42
INDENO(1,2,3-CD)PYRENE	**1900 J**	**4500 J**	**55**	**18 J**	**37**	< 4	**110**	**90**	**98**	**22**	< 4	**7 J**
ISOPHORONE	< 180	< 180	< 20	< 21	< 21	< 20	< 19	< 19	< 20	< 20	< 21	< 21
N-NITROSO-DI-N-PROPYLAMINE	< 180	< 180	< 20	< 21	< 21	< 20	< 19	< 19	< 20	< 20	< 21	< 21
N-NITROSODIPHENYLAMINE	< 180	< 180	< 20	< 21	< 21	< 20	< 19	< 19	< 20	< 20	< 21	< 21
NITROBENZENE	< 180	< 180	< 20	< 21	< 21	< 20	< 19	< 19	< 20	< 20	< 21	< 21
PENTACHLOROPHENOL	< 370	< 360	< 40	< 41	< 42	< 40	< 38	< 39	< 40	**55 J**	< 42	< 42
PHENANTHRENE	**4400**	**6500**	**140**	**40**	**83**	**9 J**	**300**	**310**	**270 J**	**46 J**	**12 J**	**26**
PHENOL	< 180	< 180	< 20	< 21	< 21	< 20	< 19	< 19	< 20	< 20	< 21	< 21
PYRENE	**7100 J**	**12000 J**	**180**	**54**	**130**	< 4	**320**	**320**	**370 J**	**150 J**	**11 J**	**19 J**
METAL (MG/KG)												
ARSENIC	**4.38**	**5.21**	**12.1**	**8.05**	**7.25**	**6.04**	**6.43 J**	**11.6 J**	**11.3**	**12.5**	**6.46 J**	**11.3 J**
BARIUM	**384**	**305**	**133**	**164**	**178**	**189**	**194**	**251**	**81.9**	**105**	**215**	**180**
CADMIUM	**0.283 J**	**0.316 J**	**0.622**	**0.583 J**	**0.621 J**	**0.686**	**0.608**	**0.712**	**0.585**	**0.725**	**0.556 J**	**0.575 J**
CHROMIUM	**17.2**	**16.1 J**	**22.5**	**19.8**	**19.3**	**23.7**	**30.5**	**31.2**	**18.6**	**26.2**	**18**	**16.1**
LEAD	**7.07**	**7.63**	**13.1**	**17.1**	**16.5**	**11**	**10.1**	**11.1**	**18.1**	**12.8**	**22.3**	**29.4**
MERCURY	< 0.0073	< 0.0076	**0.0184 J**	**0.0283 J**	**0.0238 J**	**0.0246 J**	**0.0181 J**	**0.011 J**	**0.0289 J**	**0.0241 J**	**4.47 J**	**0.0644 J**
SELENIUM	**4.88**	**6.66**	< 0.804	< 0.833	**1 J**	< 0.82	**3**	< 0.795	< 0.79	< 0.804	< 0.829	< 0.831
SILVER	< 0.775	**0.96**	< 0.0982	< 0.102	< 0.103	< 0.1	< 0.0914	< 0.0971	< 0.0964	< 0.0982	< 0.101	< 0.101
GENERAL CHEM (percent)												
MOISTURE	**9.1**	**7.6**	**17.1**	**19.2**	**20.5**	**17.9**	**11.8**	**14.5**	**17.2**	**17.1**	**20.4**	**19.8**

Notes:
[1]USEPA Industrial Regional Screening Level (RSL) based on $1x10^{-6}$ or HQ = 0.1 (November 2011)
[2]USEPA Protection of Groundwater Soil Screening Level (SSL) based dilution attenuation factor of 20 (November 2011)
NA = Not analyzed
J = The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.
R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet the quality control criteria. The presence or absence of the analyte cannot be verified.
< = The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was below the reported sample quantitation limit. However, the reported value is approximate.
mg/kg = Milligrams per Kilogram
ug/kg = Micrograms per Kilogram
Bold indicates the analyte was detected

Box indicates the result exceeded protection of groundwater SSL

TABLE 5-5
SWMU 17 Soil Data
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Analyte	Human Health Screening Level[1]	Ecological Screening Level	Protection of Groundwater SSLs[2]	Location	S17-SS01						S17-SS02				S17-SS03		
				Sample ID	S17-SS01-0002-121311	HGR-121311-FD02	S17-SS01-0305-121311	S17-SS01-0608-121311	S17-SS01-0810-121311	S17-SS01-1315-121311	S17-SS02-0002-121411	S17-SS02-0305-121411	S17-SS02-0810-121411	S17-SS02-1517-121411	S17-SS03-0002-120811	S17-SS03-0305-120811	S17-SS03-0810-120811
				Sample Depth (ft)	0 - 2	3 - 5	3 - 5	6 - 8	8 - 10	13 - 15	0 - 2	3 - 5	8 - 10	15 - 17	0 - 2	3 - 5	8 - 10
				Sample Date	12/13/2011	12/13/2011	12/13/2011	12/13/2011	12/13/2011	12/13/2011	12/14/2011	12/14/2011	12/14/2011	12/14/2011	12/8/2011	12/8/2011	12/8/2011
				UNITS													
VOC (ug/kg)																	
1,1,1,2-TETRACHLOROETHANE	9,300	130	3.8	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,1-TRICHLOROETHANE	640,000	29,800	1,400	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2,2-TETRACHLOROETHANE	2,800	130	0.52	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2-TRICHLOROETHANE	680	28,600	32	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1-DICHLOROETHANE	17,000	20,100	13.6	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1-DICHLOROETHENE	110,000	8,280	50	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1-DICHLOROPROPENE	110,000	400	50	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2,3-TRICHLOROBENZENE	49,000	-	300	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2,3-TRICHLOROPROPANE	95	3360	0.0056	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2,4-TRICHLOROBENZENE	27,000	-	4,000	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2,4-TRIMETHYLBENZENE	26,000	-	420	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2-DIBROMO-3-CHLOROPROPANE	69	-	1.72	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
1,2-DIBROMOETHANE	170	-	0.28	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2-DICHLOROETHANE	2,200	21,200	28	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2-DICHLOROPROPANE	4,700	32,700	34	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,3,5-TRIMETHYLBENZENE	182,000	-	2,400	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,3-DICHLOROPROPANE	1,490,000	32,700	1,980	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2,2-DICHLOROPROPANE	4,700	-	34	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2-BUTANONE	20,000,000	-	20,000	ug/kg	**5 J**	< 4	< 5	< 4	< 4	< 4	< 5	< 5	< 4	< 5	< 4	< 5	< 4
2-CHLOROTOLUENE	907,000	-	3,400	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2-HEXANONE	140,000	-	158	ug/kg	< 3	< 3	< 4	< 3	< 3	< 3	< 3	< 4	< 3	< 3	< 3	< 3	< 3
4-CHLOROTOLUENE	253,000	-	3,600	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
4-METHYL-2-PENTANONE	3,360,000	-	4,600	ug/kg	< 3	< 3	< 4	< 3	< 3	< 3	< 3	< 4	< 3	< 3	< 3	< 3	< 3
ACETONE	63,000,000	2,500	48,000	ug/kg	**42 J**	**10 J**	**9 J**	**8 J**	**12 J**	**12 J**	**67 J**	**17 J**	**38 J**	**19 J**	**26 J**	**20 J**	**10 J**
BENZENE	5,400	260	52	ug/kg	< 0.5	< 0.6	< 0.6	< 0.6	< 0.5	< 0.5	< 0.6	< 0.6	< 0.6	< 0.6	< 0.5	< 0.6	< 0.6
BROMOBENZENE	180,000	-	720	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOCHLOROMETHANE	68,000	-	420	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMODICHLOROMETHANE	1,400	540	440	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOFORM	220,000	15,900	420	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	3,200	-	36	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
CARBON DISULFIDE	370,000	94	4,200	ug/kg	< 1	< 1	< 1	< 1	**1 J**	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CARBON TETRACHLORIDE	3,000	2,980	38	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROBENZENE	140,000	40,000	1360	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	2,120,000	-	118,000	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
CHLOROFORM	1,500	1,190	440	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	50,000	-	980	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
CIS-1,2-DICHLOROETHENE	200,000	780	420	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CIS-1,3-DICHLOROPROPENE	8,300	400	3	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CYCLOHEXANE	117,000	-	260,000	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
DIBROMOCHLOROMETHANE	3,300	2,050	420	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
DIBROMOMETHANE	11,000	-	38	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
DICHLORODIFLUOROMETHANE	40,000	39,500	6,000	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
ETHYLBENZENE	27,000	5,160	15,600	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
FREON 113	910,000	-	2,600,000	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
HEXACHLOROBUTADIENE	22,000	-	10	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
ISOPROPYLBENZENE	268,000	-	12,800	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
M+P-XYLENE	250,000	-	3,600	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
METHYL ACETATE	29,000,000	-	64,000	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
METHYL TERTIARY BUTYL ETHER	220,000	-	56	ug/kg	< 0.5	< 0.6	< 0.6	< 0.6	< 0.5	< 0.5	< 0.6	< 0.6	< 0.6	< 0.6	< 0.5	< 0.6	< 0.6
METHYLCYCLOHEXANE	--	-	NA	--	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
METHYLENE CHLORIDE	53,000	4050	26	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
N-BUTYLBENZENE	108,000	-	50,000	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
N-PROPYLBENZENE	264,000	-	19,800	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
NAPHTHALENE	18,000	99	9.4	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
O-XYLENE	300,000	-	3,800	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
P-ISOPROPYLTOLUENE	268,000	-	12,800	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
SEC-BUTYLBENZENE	268,000	-	12,800	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
STYRENE	867,000	4,690	2,200	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TERT-BUTYLBENZENE	268,000	-	12,800	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TETRACHLOROETHENE	2,600	9,920	46	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	**6**	< 1	< 1	< 1	< 1
TOLUENE	818,000	5,450	13,800	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1,2-DICHLOROETHENE	69,000	780	580	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1,3-DICHLOROPROPENE	8,300	400	3	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROETHENE	2,000	12,400	36	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	340,000	16,400	13,800	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
VINYL ACETATE	410,000	-	1,740	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
VINYL CHLORIDE	1,700	650	13.8	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
SVOC (ug/kg)																	
1,1'-BIPHENYL	21,000	-	174	ug/kg	< 20	< 21	< 21	< 20	< 18	< 17	**58**	< 21	< 18	**20 J**	< 21	< 21	< 22
1,2-DICHLOROBENZENE	376,000	20,000	11,600	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,3-DICHLOROBENZENE	12,000	20,000	1,440	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,4-DICHLOROBENZENE	12,000	20,000	1,440	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,4-DIOXANE	17,000	-	2.8	ug/kg	< 120	< 130	< 130	< 120	< 110	< 100	< 130	< 130	< 110	< 110	< 120	< 130	< 130
2,4,5-TRICHLOROPHENOL	6,200,000	-	66,000	ug/kg	< 20	< 21	< 21	< 20	< 18	< 17	< 21	< 21	< 18	< 18	< 21	< 21	< 22
2,4,6-TRICHLOROPHENOL	62,000	-	260	ug/kg	< 20	< 21	< 21	< 20	< 18	< 17	< 21	< 21	< 18	< 18	< 21	< 21	< 22
2,4-DICHLOROPHENOL	180,000	-	820	ug/kg	< 20	< 21	< 21	< 20	< 18	< 17	< 21	< 21	< 18	< 18	< 21	< 21	< 22
2,4-DIMETHYLPHENOL	1,200,000	-	6,400	ug/kg	< 20	< 21	< 21	< 20	< 18	< 17	< 21	< 21	< 18	< 18	< 21	< 21	< 22
2,4-DINITROPHENOL	120,000	20000	680	ug/kg	< 410	< 420	< 430	< 400	< 360	< 350	< 420	< 420	< 360	< 360	< 410	< 420	< 430
2,4-DINITROTOLUENE	5,500	-	5.6	ug/kg	< 81	< 84	< 85	< 80	< 71	< 70	< 83	< 84	< 71	< 72	< 82	< 83	< 86
2,6-DINITROTOLUENE	62,000	-	400	ug/kg	< 20	< 21	< 21	< 20	< 18	< 17	< 21	< 21	< 18	< 18	< 21	< 21	< 22
2-CHLORONAPHTHALENE	175,000	-	58,000	ug/kg	< 9	< 9	< 9	< 8	< 8	< 7	< 9	< 9	< 7	< 8	< 9	< 9	< 9
2-CHLOROPHENOL	510,000	7000	1,140	ug/kg	< 20	< 21	< 21	< 20	< 18	< 17	< 21	< 21	< 18	< 18	< 21	< 21	< 22
2-METHYLNAPHTHALENE	368,000	3240	2,800	ug/kg	< 4	< 4	< 4	< 4	< 4	< 3	**49**	< 4	< 4	**28**	< 4	< 4	< 4
2-METHYLPHENOL	3,100,000	-	11,600	ug/kg	< 20	< 21	< 21	< 20	< 18	< 17	< 21	< 21	< 18	< 18	< 21	< 21	< 22
2-NITROANILINE	600,000	74,100	1,240	ug/kg	< 20	< 21	< 21	< 20	< 18	< 17	< 21	< 21	< 18	< 18	< 21	< 21	< 22

TABLE 5-5
SWMU 17 Soil Data
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Analyte	Human Health Screening Level[1]	Ecological Screening Level	Protection of Groundwater SSLs[2]	Location	S17-SS01						S17-SS02				S17-SS03		
				Sample ID	S17-SS01-0002-121311	HGR-121311-FD02	S17-SS01-0305-121311	S17-SS01-0608-121311	S17-SS01-0810-121311	S17-SS01-1315-121311	S17-SS02-0002-121411	S17-SS02-0305-121411	S17-SS02-0810-121411	S17-SS02-1517-121411	S17-SS03-0002-120811	S17-SS03-0305-120811	S17-SS03-0810-120811
				Sample Depth (ft)	0 - 2	3 - 5	3 - 5	6 - 8	8 - 10	13 - 15	0 - 2	3 - 5	8 - 10	15 - 17	0 - 2	3 - 5	8 - 10
				Sample Date	12/13/2011	12/13/2011	12/13/2011	12/13/2011	12/13/2011	12/13/2011	12/14/2011	12/14/2011	12/14/2011	12/14/2011	12/8/2011	12/8/2011	12/8/2011
				UNITS													
2-NITROPHENOL	510,000	1,600	1,140	ug/kg	< 20	< 21	< 21	< 20	< 18	< 17	< 21	< 21	< 18	< 18	< 21	< 21	< 22
3,3'-DICHLOROBENZIDINE	3,800	650	14.2	ug/kg	< 120	< 130	< 130	< 120	< 110	< 100	< 130	< 130	< 110	< 110	< 120	< 130	< 130
3-NITROANILINE	600,000	3,160	1,240	ug/kg	< 81	< 84	< 85	< 80	< 71	< 70	< 83	< 84	< 71	< 72	< 82	< 83	< 86
4,6-DINITRO-2-METHYLPHENOL	4,900	-	40	ug/kg	< 200	< 210	< 210	< 200	< 180	< 170	< 210	< 210	< 180	< 180	< 210	< 210	< 220
4-BROMOPHENYL-PHENYLETHER	--	-	NA	- -	< 20	< 21	< 21	< 20	< 18	< 17	< 21	< 21	< 18	< 18	< 21	< 21	< 22
4-CHLORO-3-METHYLPHENOL	6,200,000	-	26,000	ug/kg	< 20	< 21	< 21	< 20	< 18	< 17	< 21	< 21	< 18	< 18	< 21	< 21	< 22
4-CHLOROANILINE	8,600	20,000	2.6	ug/kg	< 20	< 21	< 21	< 20	< 18	< 17	< 21	< 21	< 18	< 18	< 21	< 21	< 22
4-CHLOROPHENYL-PHENYLETHER	--	-	NA	- -	< 20	< 21	< 21	< 20	< 18	< 17	< 21	< 21	< 18	< 18	< 21	< 21	< 22
4-METHYLPHENOL	310,000	-	1,140	ug/kg	< 20	< 21	< 21	< 20	< 18	< 17	< 21	< 21	< 18	< 18	< 21	< 21	< 22
4-NITROANILINE	86,000	21,900	28	ug/kg	< 81	< 84	< 85	< 80	< 71	< 70	< 83	< 84	< 71	< 72	< 82	< 83	< 86
4-NITROPHENOL	24,000	7,000	1.58	ug/kg	< 200	< 210	< 210	< 200	< 180	< 170	< 210	< 210	< 180	< 180	< 210	< 210	< 220
ACENAPHTHENE	3,300,000	20,000	82,000	ug/kg	< 4	< 4	< 4	< 4	< 4	< 3	< 4	< 4	< 4	< 4	< 4	< 4	< 4
ACENAPHTHYLENE	3,300,000	682,000	82,000	ug/kg	< 4	< 4	< 4	< 4	< 4	< 3	**11 J**	< 4	< 4	**4 J**	< 4	< 4	< 4
ANTHRACENE	17,000,000	1,480,000	840,000	ug/kg	< 4	< 4	< 4	< 4	< 4	< 3	**5 J**	< 4	< 4	**4 J**	< 4	< 4	< 4
BENZO(A)ANTHRACENE	2,100	5,210	200	ug/kg	< 4	< 4	< 4	< 4	< 4	< 3	**12 J**	< 4	< 4	**7 J**	< 4	< 4	< 4
BENZO(A)PYRENE	210	1,520	4,800	ug/kg	**5 J**	< 4	< 4	< 4	< 4	< 3	**20 J**	< 4	< 4	**8 J**	< 4	< 4	< 4
BENZO(B)FLUORANTHENE	2,100	59,800	700	ug/kg	**5 J**	< 4	< 4	< 4	< 4	< 3	**24**	< 4	< 4	**11 J**	< 4	< 4	< 4
BENZO(G,H,I)PERYLENE	1,700,000	119,000	190,000	ug/kg	**6 J**	< 4	< 4	< 4	< 4	< 3	**21 J**	< 4	< 4	**10 J**	< 4	< 4	< 4
BENZO(K)FLUORANTHENE	21,000	148,000	7,000	ug/kg	**5 J**	< 4	< 4	< 4	< 4	< 3	< 4	< 4	< 4	< 4	< 4	< 4	< 4
BENZYL ALCOHOL	6,200,000	-	7,400	ug/kg	< 200	< 210	< 210	< 200	< 180	< 170	< 210	< 210	< 180	< 180	< 210	< 210	< 220
BIS(2-CHLOROETHOXY)METHANE	180,000	300	220	ug/kg	< 20	< 21	< 21	< 20	< 18	< 17	< 21	< 21	< 18	< 18	< 21	< 21	< 22
BIS(2-CHLOROETHYL)ETHER	1,000	23,700	0.062	ug/kg	< 20	< 21	< 21	< 20	< 18	< 17	< 21	< 21	< 18	< 18	< 21	< 21	< 22
BIS(2-ETHYLHEXYL)PHTHALATE	120,000	930	28,000	ug/kg	< 81	< 84	< 85	< 80	< 71	< 70	< 83	< 84	< 71	< 72	< 82	< 83	< 86
BUTYLBENZYLPHTHALATE	910,000	-	4,000	ug/kg	< 81	< 84	< 85	< 80	< 71	< 70	< 83	< 84	< 71	< 72	< 82	< 83	< 86
CARBAZOLE	--	-	NA	- -	< 20	< 21	< 21	< 20	< 18	< 17	< 21	< 21	< 18	< 18	< 21	< 21	< 22
CHRYSENE	210,000	4,730	22,000	ug/kg	**5 J**	< 4	< 4	< 4	< 4	**8 J**	**16 J**	< 4	< 4	**17 J**	< 4	< 4	< 4
DI-N-BUTYLPHTHALATE	6,200,000	150	34,000	ug/kg	< 81	< 84	< 85	< 80	< 71	< 70	< 83	< 84	< 71	< 72	< 82	< 83	< 86
DI-N-OCTYLPHTHALATE	--	-	NA	- -	< 81	< 84	< 85	< 80	< 71	< 70	< 83	< 84	< 71	< 72	< 82	< 83	< 86
DIBENZ(A,H)ANTHRACENE	210	18,400	220	ug/kg	**4 J**	< 4	< 4	< 4	< 4	< 3	< 4	< 4	< 4	< 4	< 4	< 4	< 4
DIBENZOFURAN	100,000	-	2,200	ug/kg	< 20	< 21	< 21	< 20	< 18	< 17	< 21	< 21	< 18	< 18	< 21	< 21	< 22
DIETHYLPHTHALATE	49,000,000	100,000	94,000	ug/kg	< 81	< 84	< 85	< 80	< 71	< 70	< 83	< 84	< 71	< 72	< 82	< 83	< 86
DIMETHYLPHTHALATE	--	734,000	NA	- -	< 81	< 84	< 85	< 80	< 71	< 70	< 83	< 84	< 71	< 72	< 82	< 83	< 86
FLUORANTHENE	2,200,000	122,000	1,400,000	ug/kg	**6 J**	< 4	< 4	< 4	< 4	**6 J**	**25**	**7 J**	< 4	**15 J**	< 4	< 4	< 4
FLUORENE	2,200,000	30,000	80,000	ug/kg	< 4	< 4	< 4	< 4	< 4	< 3	< 4	< 4	< 4	< 4	< 4	< 4	< 4
HEXACHLOROBENZENE	1,100	-	260	ug/kg	< 4	< 4	< 4	< 4	< 4	< 3	< 4	< 4	< 4	< 4	< 4	< 4	< 4
HEXACHLOROCYCLOPENTADIENE	370,000	-	3200	ug/kg	< 200	< 210	< 210	< 200	< 180	< 170	< 210	< 210	< 180	< 180	< 210	< 210	< 220
HEXACHLOROETHANE	43,000	-	9.6	ug/kg	< 41	< 42	< 43	< 40	< 36	< 35	< 42	< 42	< 36	< 36	< 41	< 42	< 43
INDENO(1,2,3-CD)PYRENE	2,100	109000	2,400	ug/kg	**6 J**	< 4	< 4	< 4	< 4	< 3	**20 J**	< 4	< 4	**7 J**	< 4	< 4	< 4
ISOPHORONE	1,800,000	-	440	ug/kg	< 20	< 21	< 21	< 20	< 18	< 17	< 21	< 21	< 18	< 18	< 21	< 21	< 22
N-NITROSO-DI-N-PROPYLAMINE	250	-	0.14	ug/kg	< 20	< 21	< 21	< 20	< 18	< 17	< 21	< 21	< 18	< 18	< 21	< 21	< 22
N-NITROSODIPHENYLAMINE	350,000	550	1,140	ug/kg	< 20	< 21	< 21	< 20	< 18	< 17	< 21	< 21	< 18	< 18	< 21	< 21	< 22
NITROBENZENE	24,000	-	1.58	ug/kg	< 20	< 21	< 21	< 20	< 18	< 17	< 21	< 21	**110**	< 18	< 21	< 21	< 22
PENTACHLOROPHENOL	2,700	3000	200	ug/kg	< 41	< 42	< 43	< 40	< 36	< 35	< 42	< 42	< 36	< 36	< 41	< 42	< 43
PHENANTHRENE	17,000,000	45,700	840,000	ug/kg	**4 J**	< 4	< 4	< 4	**4 J**	**29**	**14 J**	**5 J**	**10 J**	**39**	< 4	< 4	< 4
PHENOL	18,000,000	30,000	52,000	ug/kg	< 20	< 21	< 21	< 20	< 18	< 17	< 21	< 21	< 18	< 18	< 21	< 21	< 22
PYRENE	1,700,000	45,700	190,000	ug/kg	**7 J**	< 4	< 4	< 4	< 4	< 3	**30**	**10 J**	< 4	**19**	< 4	< 4	< 4
METAL (MG/KG)																	
ARSENIC	1.6	18	5.8	mg/kg	**13.5**	**11.2**	**10.2**	**10.3**	**6.57**	**5.76**	**11.9 J**	**11.8**	**8.57**	**10.7**	**13.7 J**	**13.9**	**12.6**
BARIUM	19,000	330	1640	mg/kg	**94 J**	**111 J**	**85 J**	**66.6 J**	**41.1 J**	**59 J**	**160**	**87.3**	**65.8**	**72.1**	**235 J**	**145**	**96**
CADMIUM	80	32	7.6	mg/kg	**0.925**	**0.807**	**0.762**	**0.741**	**0.24 J**	**0.403 J**	**1.89 J**	**0.864**	**0.48 J**	**0.653**	**1.4 J**	**1.51**	**1.33**
CHROMIUM	150,000	0.4	560,000,000	mg/kg	**19.3**	**14.6**	**13.2**	**11.3**	**4.18**	**4.16**	**58.1 J**	**15.3**	**7.1**	**22.7**	**23.4**	**22**	**19.1**
LEAD	80	120	280	mg/kg	**16**	**12.7**	**11.6**	**10.7**	**2.72**	**4.25**	**19.7**	**8.86**	**5.06**	**5.02**	**17.5**	**16.7**	**14.7**
MERCURY	3.13	0.1	2	mg/kg	< 0.0081	**0.0172 J**	**0.0128 J**	< 0.008	< 0.0074	< 0.0071	**0.0112 J**	**0.0107 J**	< 0.0071	< 0.0074	< 0.0082	**0.0169 J**	**0.0156 J**
SELENIUM	510	0.52	5.2	mg/kg	< 0.822	< 0.859	< 0.844	< 0.78	< 0.715	< 0.704	< 0.825	< 0.827	< 0.713	< 0.722	**3.57**	**3.6**	**3.2**
SILVER	510	560	12	mg/kg	< 0.1	< 0.105	< 0.103	< 0.0952	< 0.0872	< 0.0859	< 0.101	< 0.101	< 0.087	< 0.0882	< 0.0984	< 0.104	< 0.108
GENERAL CHEM (percent)																	
MOISTURE	--	--	--	- -	**18.1**	**20.8**	**21.8**	**16.2**	**6.7**	**4.3**	**20**	**20.9**	**6.5**	**7.7**	**18.9**	**20.1**	**22.9**

Notes:
[1]Screening level is based on the minimum between the USEPA Industrial Regional Screening Level (RSL) based on 1x10-6 or HQ = 0.1 (November 2011) and USEPA Ecological Soil Screening Levels
[2]USEPA Protection of Groundwater Soil Screening Level (SSL) based dilution attenuation factor of 20 (November 2011)
NA = Not analyzed
J = The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.
< = The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was below the reported sample quantitation limit. However, the reported value is approximate.
mg/kg = Milligrams per Kilogram
ug/kg = Micrograms per Kilogram
Bold indicates the analyte was detected
Shading indicates the result exceeded industrial soil RSL
Box indicates the result exceeded protection of groundwater SSL

TABLE 5-6
SWMU 19 Soil Data
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Analyte	Human Health Screening Level[1]	Ecological Screening Level	Protection of Groundwater SSLs[2]	Location	S19-SS01			S19-SS02			
				Sample ID	S19-SS01-0002-121311	S19-SS01-0305-121311	S19-SS01-0810-121311	S19-SS02-0002-121311	S19-SS02-0305-121311	S19-SS02-0810-121311	S19-SS02-1618-121311
				Sample Depth (ft)	0 - 2	3 - 5	8 - 10	0 - 2	3 - 5	8 - 10	16 - 18
				Sample Date	12/13/2011	12/13/2011	12/13/2011	12/13/2011	12/13/2011	12/13/2011	12/13/2011
				UNITS							
VOC (ug/kg)											
1,1,1,2-TETRACHLOROETHANE	9,300	130	3.8	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
1,1,1-TRICHLOROETHANE	640,000	29,800	1,400	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
1,1,2,2-TETRACHLOROETHANE	2,800	130	0.52	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
1,1,2-TRICHLOROETHANE	680	28,600	32	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
1,1-DICHLOROETHANE	17,000	20,100	13.6	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
1,1-DICHLOROETHENE	110,000	8,280	50	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
1,1-DICHLOROPROPENE	110,000	400	50	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
1,2,3-TRICHLOROBENZENE	49,000	-	300	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
1,2,3-TRICHLOROPROPANE	95	3,360	0.0056	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
1,2,4-TRICHLOROBENZENE	27,000	-	4,000	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
1,2,4-TRIMETHYLBENZENE	26,000	-	420	ug/kg	< 1	< 1	< 1	**2 J**	< 0.9	< 1	< 1
1,2-DIBROMO-3-CHLOROPROPANE	69	-	1.72	ug/kg	< 2	< 2	< 2	< 2	< 2	< 3	< 2
1,2-DIBROMOETHANE	170	-	0.28	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
1,2-DICHLOROETHANE	2,200	21,200	28	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
1,2-DICHLOROPROPANE	4,700	32,700	34	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
1,3,5-TRIMETHYLBENZENE	182,000	-	2,400	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
1,3-DICHLOROPROPANE	1,490,000	32,700	1,980	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
2,2-DICHLOROPROPANE	4,700	-	34	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
2-BUTANONE	20,000,000	-	20,000	ug/kg	**5 J**	< 5	< 5	**22**	< 4	< 5	< 4
2-CHLOROTOLUENE	907,000	-	3,400	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
2-HEXANONE	140,000	-	158	ug/kg	< 3	< 3	< 3	< 3	< 3	< 4	< 3
4-CHLOROTOLUENE	253,000	-	3,600	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
4-METHYL-2-PENTANONE	3,360,000	-	4,600	ug/kg	< 3	< 3	< 3	< 3	< 3	< 4	< 3
ACETONE	63,000,000	2,500	48,000	ug/kg	**38 J**	**22 J**	**17 J**	**130 J**	**15 J**	**25 J**	**22 J**
BENZENE	5,400	260	52	ug/kg	< 0.5	< 0.6	< 0.6	< 0.5	< 0.4	< 0.6	< 0.5
BROMOBENZENE	180,000	-	720	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
BROMOCHLOROMETHANE	68,000	-	420	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
BROMODICHLOROMETHANE	1,400	540	440	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
BROMOFORM	220,000	15,900	420	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
BROMOMETHANE	3,200	-	36	ug/kg	< 2	< 2	< 2	< 2	< 2	< 3	< 2
CARBON DISULFIDE	370,000	94	4,200	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	**1 J**
CARBON TETRACHLORIDE	3,000	2,980	38	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
CHLOROBENZENE	140,000	40,000	1360	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
CHLOROETHANE	2,120,000	-	118,000	ug/kg	< 2	< 2	< 2	< 2	< 2	< 3	< 2
CHLOROFORM	1,500	1,190	440	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
CHLOROMETHANE	50,000	-	980	ug/kg	< 2	< 2	< 2	< 2	< 2	< 3	< 2
CIS-1,2-DICHLOROETHENE	200,000	780	420	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
CIS-1,3-DICHLOROPROPENE	8,300	400	3	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
CYCLOHEXANE	117,000	-	260,000	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
DIBROMOCHLOROMETHANE	3,300	2,050	420	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
DIBROMOMETHANE	11,000	-	38	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
DICHLORODIFLUOROMETHANE	40,000	39,500	6,000	ug/kg	< 2	< 2	< 2	< 2	< 2	< 3	< 2
ETHYLBENZENE	27,000	5,160	15,600	ug/kg	< 1	< 1	< 1	< 1	**0.9 J**	< 1	< 1
FREON 113	910,000	-	2,600,000	ug/kg	< 2	< 2	< 2	< 2	< 2	< 3	< 2
HEXACHLOROBUTADIENE	22,000	-	10	ug/kg	< 2	< 2	< 2	< 2	< 2	< 3	< 2
ISOPROPYLBENZENE	268,000	-	12,800	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
M+P-XYLENE	250,000	-	3,600	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
METHYL ACETATE	29,000,000	-	64,000	ug/kg	< 2	< 2	< 2	< 2	< 2	< 3	< 2
METHYL TERTIARY BUTYL ETHER	220,000	-	56	ug/kg	< 0.5	< 0.6	< 0.6	< 0.5	< 0.4	< 0.6	< 0.5
METHYLCYCLOHEXANE	--	-	NA	- -	< 1	< 1	< 1	< 1	< 0.9	**5 J**	< 1
METHYLENE CHLORIDE	53,000	4,050	26	ug/kg	< 2	< 2	< 2	< 2	< 2	< 3	< 2
N-BUTYLBENZENE	108,000	-	50,000	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
N-PROPYLBENZENE	264,000	-	19,800	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
NAPHTHALENE	18,000	99	9.4	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
O-XYLENE	300,000	-	3,800	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
P-ISOPROPYLTOLUENE	268,000	-	12,800	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
SEC-BUTYLBENZENE	268,000	-	12,800	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
STYRENE	867,000	4,690	2,200	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
TERT-BUTYLBENZENE	268,000	-	12,800	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
TETRACHLOROETHENE	2,600	9,920	46	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
TOLUENE	818,000	5,450	13,800	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
TRANS-1,2-DICHLOROETHENE	69,000	780	580	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
TRANS-1,3-DICHLOROPROPENE	8,300	400	3	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
TRICHLOROETHENE	2,000	12,400	36	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
TRICHLOROFLUOROMETHANE	340,000	16,400	13,800	ug/kg	< 2	< 2	< 2	< 2	< 2	< 3	< 2
VINYL ACETATE	410,000	-	1,740	ug/kg	< 2	< 2	< 2	< 2	< 2	< 3	< 2
VINYL CHLORIDE	1,700	650	13.8	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
SVOC (ug/kg)											
1,1'-BIPHENYL	21,000	-	174	ug/kg	< 20	< 20	< 21	**66**	< 18	< 17	< 18
1,2-DICHLOROBENZENE	376,000	20,000	11,600	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
1,3-DICHLOROBENZENE	12,000	20,000	1,440	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
1,4-DICHLOROBENZENE	12,000	20,000	1,440	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
1,4-DIOXANE	17,000	-	2.8	ug/kg	< 120	< 120	< 130	< 120	< 110	< 100	< 110
2,4,5-TRICHLOROPHENOL	6,200,000	-	66,000	ug/kg	< 20	< 20	< 21	< 20	< 18	< 17	< 18
2,4,6-TRICHLOROPHENOL	62,000	-	260	ug/kg	< 20	< 20	< 21	< 20	< 18	< 17	< 18
2,4-DICHLOROPHENOL	180,000	-	820	ug/kg	< 20	< 20	< 21	< 20	< 18	< 17	< 18
2,4-DIMETHYLPHENOL	1,200,000	-	6,400	ug/kg	< 20	< 20	< 21	< 20	< 18	< 17	< 18
2,4-DINITROPHENOL	120,000	20,000	680	ug/kg	< 400	< 400	< 430	< 410	< 350	< 350	< 350
2,4-DINITROTOLUENE	5,500	-	5.6	ug/kg	< 79	< 80	< 85	< 81	< 71	< 70	< 70

TABLE 5-6
SWMU 19 Soil Data
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Analyte	Human Health Screening Level[1]	Ecological Screening Level	Protection of Groundwater SSLs[2]	Location	S19-SS01			S19-SS02			
				Sample ID	S19-SS01-0002-121311	S19-SS01-0305-121311	S19-SS01-0810-121311	S19-SS02-0002-121311	S19-SS02-0305-121311	S19-SS02-0810-121311	S19-SS02-1618-121311
				Sample Depth (ft)	0 - 2	3 - 5	8 - 10	0 - 2	3 - 5	8 - 10	16 - 18
				Sample Date	12/13/2011	12/13/2011	12/13/2011	12/13/2011	12/13/2011	12/13/2011	12/13/2011
				UNITS							
2,6-DINITROTOLUENE	62,000	-	400	ug/kg	< 20	< 20	< 21	< 20	< 18	< 17	< 18
2-CHLORONAPHTHALENE	175,000	-	58,000	ug/kg	< 8	< 8	< 9	< 9	< 7	< 7	< 7
2-CHLOROPHENOL	510,000	7,000	1,140	ug/kg	< 20	< 20	< 21	< 20	< 18	< 17	< 18
2-METHYLNAPHTHALENE	368,000	3,240	2,800	ug/kg	**8 J**	< 4	< 4	**8 J**	< 4	< 3	< 4
2-METHYLPHENOL	3,100,000	-	11,600	ug/kg	< 20	< 20	< 21	< 20	< 18	< 17	< 18
2-NITROANILINE	600,000	74,100	1,240	ug/kg	< 20	< 20	< 21	< 20	< 18	< 17	< 18
2-NITROPHENOL	510,000	1,600	1,140	ug/kg	< 20	< 20	< 21	< 20	< 18	< 17	< 18
3,3'-DICHLOROBENZIDINE	3,800	650	14.2	ug/kg	< 120	< 120	< 130	< 120	< 110	< 100	< 110
3-NITROANILINE	600,000	3,160	1,240	ug/kg	< 79	< 80	< 85	< 81	< 71	< 70	< 70
4,6-DINITRO-2-METHYLPHENOL	4,900	-	40	ug/kg	< 200	< 200	< 210	< 200	< 180	< 170	< 180
4-BROMOPHENYL-PHENYLETHER	--	-	NA	- -	< 20	< 20	< 21	< 20	< 18	< 17	< 18
4-CHLORO-3-METHYLPHENOL	6,200,000	-	26,000	ug/kg	< 20	< 20	< 21	< 20	< 18	< 17	< 18
4-CHLOROANILINE	8,600	20,000	2.6	ug/kg	< 20	< 20	< 21	< 20	< 18	< 17	< 18
4-CHLOROPHENYL-PHENYLETHER	--	-	NA	- -	< 20	< 20	< 21	< 20	< 18	< 17	< 18
4-METHYLPHENOL	310,000	-	1,140	ug/kg	< 20	< 20	< 21	< 20	< 18	< 17	< 18
4-NITROANILINE	86,000	21,900	28	ug/kg	< 79	< 80	< 85	< 81	< 71	< 70	< 70
4-NITROPHENOL	24,000	7,000	1.58	ug/kg	< 200	< 200	< 210	< 200	< 180	< 170	< 180
ACENAPHTHENE	3,300,000	20,000	82,000	ug/kg	**5 J**	< 4	< 4	< 4	< 4	< 3	< 4
ACENAPHTHYLENE	3,300,000	682,000	82,000	ug/kg	< 4	< 4	< 4	< 4	< 4	< 3	< 4
ANTHRACENE	17,000,000	1,480,000	840,000	ug/kg	**5 J**	< 4	< 4	**8 J**	< 4	< 3	< 4
BENZO(A)ANTHRACENE	2,100	5,210	200	ug/kg	**8 J**	< 4	< 4	**20 J**	< 4	< 3	< 4
BENZO(A)PYRENE	210	1,520	4,800	ug/kg	**17 J**	**6 J**	**7 J**	**35**	**5 J**	< 3	< 4
BENZO(B)FLUORANTHENE	2,100	59,800	700	ug/kg	**21**	**6 J**	**8 J**	**50**	**6 J**	< 3	**4 J**
BENZO(G,H,I)PERYLENE	1,700,000	119,000	190,000	ug/kg	**15 J**	**7 J**	**8 J**	**26**	**7 J**	**4 J**	**6 J**
BENZO(K)FLUORANTHENE	21,000	148,000	7,000	ug/kg	**14 J**	**5 J**	**6 J**	**34**	**5 J**	< 3	< 4
BENZYL ALCOHOL	6,200,000	-	7,400	ug/kg	< 200	< 200	< 210	< 200	< 180	< 170	< 180
BIS(2-CHLOROETHOXY)METHANE	180,000	300	220	ug/kg	< 20	< 20	< 21	< 20	< 18	< 17	< 18
BIS(2-CHLOROETHYL)ETHER	1,000	23,700	0.062	ug/kg	< 20	< 20	< 21	< 20	< 18	< 17	< 18
BIS(2-ETHYLHEXYL)PHTHALATE	120,000	930	28,000	ug/kg	**85 J**	**160 J**	< 85	< 81	**73 J**	< 70	< 70
BUTYLBENZYLPHTHALATE	910,000	-	4,000	ug/kg	< 79	< 80	< 85	< 81	< 71	< 70	< 70
CARBAZOLE	--	-	NA	- -	< 20	< 20	< 21	< 20	< 18	< 17	< 18
CHRYSENE	210,000	4,730	22,000	ug/kg	**15 J**	< 4	**6 J**	**30**	**5 J**	**4 J**	**5 J**
DI-N-BUTYLPHTHALATE	6,200,000	150	34,000	ug/kg	< 79	< 80	< 85	< 81	< 71	< 70	< 70
DI-N-OCTYLPHTHALATE	--	-	NA	- -	< 79	< 80	< 85	< 81	< 71	< 70	< 70
DIBENZ(A,H)ANTHRACENE	210	18,400	220	ug/kg	**9 J**	**6 J**	**7 J**	**12 J**	**5 J**	**5 J**	**5 J**
DIBENZOFURAN	100,000	-	2,200	ug/kg	< 20	< 20	< 21	< 20	< 18	< 17	< 18
DIETHYLPHTHALATE	49,000,000	100,000	94,000	ug/kg	< 79	< 80	< 85	< 81	< 71	< 70	< 70
DIMETHYLPHTHALATE	--	734,000	NA	- -	< 79	< 80	< 85	< 81	< 71	< 70	< 70
FLUORANTHENE	2,200,000	122,000	1,400,000	ug/kg	**19 J**	< 4	**6 J**	**28**	< 4	< 3	< 4
FLUORENE	2,200,000	30,000	80,000	ug/kg	**6 J**	< 4	< 4	< 4	< 4	< 3	< 4
HEXACHLOROBENZENE	1,100	-	260	ug/kg	< 4	< 4	< 4	< 4	< 4	< 3	< 4
HEXACHLOROCYCLOPENTADIENE	370,000	-	3,200	ug/kg	< 200	< 200	< 210	< 200	< 180	< 170	< 180
HEXACHLOROETHANE	43,000	-	9.6	ug/kg	< 40	< 40	< 43	< 41	< 35	< 35	< 35
INDENO(1,2,3-CD)PYRENE	2,100	109,000	2400	ug/kg	**13 J**	**6 J**	**8 J**	**22**	**7 J**	**4 J**	**5 J**
ISOPHORONE	1,800,000	-	440	ug/kg	< 20	< 20	< 21	< 20	< 18	< 17	< 18
N-NITROSO-DI-N-PROPYLAMINE	250	-	0.14	ug/kg	< 20	< 20	< 21	< 20	< 18	< 17	< 18
N-NITROSODIPHENYLAMINE	350,000	550	1,140	ug/kg	< 20	< 20	< 21	< 20	< 18	< 17	< 18
NITROBENZENE	24,000	-	1.58	ug/kg	< 20	< 20	< 21	< 20	< 18	< 17	< 18
PENTACHLOROPHENOL	2,700	3,000	200	ug/kg	< 40	< 40	< 43	< 41	< 35	< 35	< 35
PHENANTHRENE	17,000,000	45,700	840,000	ug/kg	**22**	< 4	**6 J**	**22**	**5 J**	**13 J**	**6 J**
PHENOL	18,000,000	30,000	52,000	ug/kg	< 20	< 20	< 21	**34 J**	< 18	< 17	< 18
PYRENE	1,700,000	45,700	190,000	ug/kg	**18 J**	< 4	**7 J**	**28**	**4 J**	< 3	< 4
METAL (MG/KG)											
ARSENIC	1.6	18	5.8	mg/kg	**12.5**	**9.82**	**11.4**	**11.3**	**5.78**	**4.48**	**5.97**
BARIUM	19,000	330	1640	mg/kg	**100 J**	**54.2 J**	**66.9 J**	**83.1 J**	**52.1 J**	**49.8 J**	**36.8 J**
CADMIUM	80	32	7.6	mg/kg	**0.893**	**0.767**	**0.919**	**0.974**	**0.744**	**0.509**	**0.365 J**
CHROMIUM	150,000	0.4	560,000,000	mg/kg	**26.8**	**11.3**	**15.4**	**17.9**	**10.7**	**4.75**	**5.03**
LEAD	80	120	280	mg/kg	**12.7**	**10.2**	**12.6**	**13.7 J**	**6.19**	**3.77**	**3.87**
MERCURY	3.13	0.1	2	mg/kg	< 0.0078	< 0.0079	< 0.0089	**0.015 J**	< 0.007	< 0.0071	< 0.0072
SELENIUM	510	0.52	5.2	mg/kg	< 0.81	< 0.8	< 0.855	< 0.822	< 0.715	< 0.692	< 0.702
SILVER	510	560	12	mg/kg	< 0.0988	< 0.0977	< 0.104	< 0.1	< 0.0872	< 0.0845	< 0.0857
GENERAL CHEM (percent)											
MOISTURE	--			- -	**16**	**16.7**	**22**	**18.1**	**5.8**	**4.6**	**5**

Notes:
[1]Screening level is based on the minimum between the USEPA Industrial Regional Screening Level (RSL) based on 1x10-6 or HQ = 0.1 (November 2011) and USEPA Ecolgical Soil Screening Level
[2]USEPA Protection of Groundwater Soil Screening Level (SSL) based dilution attenuation factor of 20 (November 2011)
NA = Not analyzed
J = The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.
U = The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was below the reported sample quantitation limit. However, the reported value is approximate.
mg/kg = Milligrams per Kilogram
ug/kg = Micrograms per Kilogram
Bold indicates the analyte was detected
Shading indicates the result exceeded industrial soil RSL
Box indicates the result exceeded protection of groundwater SSL

TABLE 5-7
SWMU 24 Soil Data
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Analyte	Industrial RSL[1]	Protection of Groundwater SSLs[2]	Location	S24-SS01				S24-SS02					S24-SS03			S24-SS04		
			Sample ID	S24-SS01-0002-121411	S24-SS01-0305-121411	S24-SS01-0810-121411	S24-SS01-2123-121411	S24-S33S02-0002-120711	HGR-120711-FD01	S24-SS02-0305-120711	S24-SS02-0810-120711	S24-SS02-1315-120711	S24-SS03-0002-120711	S24-SS03-0305-120711	S24-SS03-0810-120711	S24-SS04-0002-120711	S24-SS04-0305-120711	S24-SS04-0810-120711
			Sample Depth (ft)	0 - 2	3 - 5	8 - 10	21 - 23	0 - 2	3 - 5	3 - 5	8 - 10	13 - 15	0 - 2	3 - 5	8 - 10	0 - 2	3 - 5	8 - 10
			Sample Date	12/14/2011	12/14/2011	12/14/2011	12/14/2011	12/7/2011	12/7/2011	12/7/2011	12/7/2011	12/7/2011	12/7/2011	12/7/2011	12/7/2011	12/7/2011	12/7/2011	12/7/2011
			UNITS															
VOC (ug/kg)																		
1,1,1,2-TETRACHLOROETHANE	9,300	3.8	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1100	< 1	< 1	< 1	< 1	< 1	< 1
1,1,1-TRICHLOROETHANE	640,000	1,400	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	**2 J**	< 1100	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2,2-TETRACHLOROETHANE	2,800	0.52	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1100	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2-TRICHLOROETHANE	680	32	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1100	< 1	< 1	< 1	< 1	< 1	< 1
1,1-DICHLOROETHANE	17,000	14	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	**1 J**	< 1100	< 1	< 1	< 1	< 1	< 1	< 1
1,1-DICHLOROETHENE	110,000	50	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1100	< 1	< 1	< 1	< 1	< 1	< 1
1,1-DICHLOROPROPENE	110,000	50	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1100	< 1	< 1	< 1	< 1	< 1	< 1
1,2,3-TRICHLOROBENZENE	49,000	300	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1100	< 1	< 1	< 1	< 1	< 1	< 1
1,2,3-TRICHLOROPROPANE	95	0.0056	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1100	< 1	< 1	< 1	< 1	< 1	< 1
1,2,4-TRICHLOROBENZENE	27,000	4,000	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1100	< 1	< 1	< 1	< 1	< 1	< 1
1,2,4-TRIMETHYLBENZENE	26,000	420	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	**5 J**	< 1100	< 1	< 1	< 1	< 1	< 1	< 1
1,2-DIBROMO-3-CHLOROPROPANE	69	1.72	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2200	< 2	< 2	< 2	< 2	< 2	< 2
1,2-DIBROMOETHANE	170	0.28	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1100	< 1	< 1	< 1	< 1	< 1	< 1
1,2-DICHLOROETHANE	2,200	28	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1100	< 1	< 1	< 1	< 1	< 1	< 1
1,2-DICHLOROPROPANE	4,700	34	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1100	< 1	< 1	< 1	< 1	< 1	< 1
1,3,5-TRIMETHYLBENZENE	182,000	2,400	ug/kg	< 1	< 1	< 1	< 1	< 0.9	**2 J**	< 1	**140**	**30000 J**	< 1	< 1	< 1	< 1	< 1	< 1
1,3-DICHLOROPROPANE	1,490,000	1,980	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1100	< 1	< 1	< 1	< 1	< 1	< 1
2,2-DICHLOROPROPANE	4,700	34	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1100	< 1	< 1	< 1	< 1	< 1	< 1
2-BUTANONE	20,000,000	20,000	ug/kg	< 4	< 4	< 4	< 4	< 3	< 4	< 4	< 4	< 4400	< 4	**8 J**	< 4	< 5	< 4	< 5
2-CHLOROTOLUENE	907,000	3,400	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1100	< 1	< 1	< 1	< 1	< 1	< 1
2-HEXANONE	140,000	158	ug/kg	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3300	< 3	< 3	< 3	< 3	< 3	< 3
4-CHLOROTOLUENE	253,000	3,600	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1100	< 1	< 1	< 1	< 1	< 1	< 1
4-METHYL-2-PENTANONE	3,360,000	4,600	ug/kg	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3300	< 3	< 3	< 3	< 3	< 3	< 3
ACETONE	63,000,000	48,000	ug/kg	< 7	**25 J**	**11 J**	**8 J**	**21 J**	< 7	< 7	**13 J**	< 7800	**25 J**	**90 J**	**23 J**	**11 J**	**26 J**	**14 J**
BENZENE	5,400	52	ug/kg	< 0.5	< 0.5	< 0.5	< 0.5	< 0.4	**29**	**18**	**230**	**2100 J**	< 0.5	< 0.5	< 0.5	< 0.6	< 0.5	< 0.6
BROMOBENZENE	180,000	720	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1100	< 1	< 1	< 1	< 1	< 1	< 1
BROMOCHLOROMETHANE	68,000	420	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1100	< 1	< 1	< 1	< 1	< 1	< 1
BROMODICHLOROMETHANE	1,400	440	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1100	< 1	< 1	< 1	< 1	< 1	< 1
BROMOFORM	220,000	420	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1100	< 1	< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	3,200	36	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2200	< 2	< 2	< 2	< 2	< 2	< 2
CARBON DISULFIDE	370,000	4,200	ug/kg	**7 J**	< 1	< 1	< 1	**8**	< 1	< 1	< 1	< 1100	< 1	< 1	< 1	**2 J**	< 1	**2 J**
CARBON TETRACHLORIDE	3,000	38	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1100	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROBENZENE	140,000	1,360	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1100	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	2,120,000	118,000	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2200	< 2	< 2	< 2	< 2	< 2	< 2
CHLOROFORM	1,500	440	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1100	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	50,000	980	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2200	< 2	< 2	< 2	< 2	< 2	< 2
CIS-1,2-DICHLOROETHENE	200,000	420	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1100	< 1	< 1	< 1	< 1	< 1	< 1
CIS-1,3-DICHLOROPROPENE	8,300	3	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1100	< 1	< 1	< 1	< 1	< 1	< 1
CYCLOHEXANE	117,000	260,000	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	**1 J**	< 1100	< 1	< 1	< 1	< 1	< 1	< 1
DIBROMOCHLOROMETHANE	3,300	420	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1100	< 1	< 1	< 1	< 1	< 1	< 1
DIBROMOMETHANE	11,000	38	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1100	< 1	< 1	< 1	< 1	< 1	< 1
DICHLORODIFLUOROMETHANE	40,000	6,000	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2200	< 2	< 2	< 2	< 2	< 2	< 2
ETHYLBENZENE	27,000	15,600	ug/kg	< 1	< 1	< 1	< 1	< 0.9	**76 J**	**29 J**	**5300**	**990000**	< 1	< 1	< 1	**13 J**	< 1	**520 J**
FREON 113	910,000	2,600,000	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2200	< 2	< 2	< 2	< 2	< 2	< 2
HEXACHLOROBUTADIENE	22,000	10	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2200	< 2	< 2	< 2	< 2	< 2	< 2
ISOPROPYLBENZENE	268,000	12,800	ug/kg	< 1	< 1	< 1	< 1	< 0.9	**14**	**14**	**310**	**79000 J**	< 1	< 1	< 1	**2 J**	< 1	**230 J**
M+P-XYLENE	250,000	3,600	ug/kg	< 1	< 1	< 1	< 1	< 0.9	**10**	**5**	**120**	**25000 J**	< 1	< 1	< 1	**2 J**	< 1	**7 J**
METHYL ACETATE	29,000,000	64,000	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2200	< 2	< 2	< 2	< 2	< 2	< 2
METHYL TERTIARY BUTYL ETHER	220,000	56	ug/kg	< 0.5	< 0.5	< 0.5	< 0.5	< 0.4	< 0.5	< 0.5	< 0.5	< 560	< 0.5	< 0.5	< 0.5	< 0.6	< 0.5	< 0.6
METHYLCYCLOHEXANE	- -	NA	- -	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1100	< 1	< 1	< 1	< 1	< 1	< 1
METHYLENE CHLORIDE	53,000	26	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2200	< 2	< 2	< 2	< 2	< 2	< 2
N-BUTYLBENZENE	108,000	50,000	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1100	< 1	< 1	< 1	< 1	< 1	< 1
N-PROPYLBENZENE	264,000	19,800	ug/kg	< 1	< 1	< 1	< 1	< 0.9	**3 J**	< 1	**240**	**48000 J**	< 1	< 1	< 1	< 1	< 1	**64 J**
NAPHTHALENE	18,000	9.4	ug/kg	< 1	< 1	< 1	< 1	< 0.9	**1 J**	< 1	**2 J**	< 1100	< 1	< 1	< 1	**3 J**	< 1	< 1
O-XYLENE	300,000	3,800	ug/kg	< 1	< 1	< 1	< 1	< 0.9	**3 J**	**2 J**	**130**	**26000 J**	< 1	< 1	< 1	< 1	< 1	**5 J**
P-ISOPROPYLTOLUENE	268,000	12,800	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1100	< 1	< 1	< 1	< 1	< 1	< 1
SEC-BUTYLBENZENE	268,000	12,800	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	**15**	**5700 J**	< 1	< 1	< 1	< 1	< 1	**13 J**
STYRENE	867,000	2,200	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	**220 J**	**460000**	< 1	< 1	< 1	< 1	< 1	< 1
TERT-BUTYLBENZENE	268,000	12,800	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1100	< 1	< 1	< 1	< 1	< 1	< 1
TETRACHLOROETHENE	2,600	46	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	**3 J**	< 1100	< 1	< 1	< 1	< 1	< 1	< 1
TOLUENE	818,000	13,800	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	**120**	**6100 J**	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1,2-DICHLOROETHENE	69,000	580	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1100	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1,3-DICHLOROPROPENE	8,300	3	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1100	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROETHENE	2,000	36	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1100	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	340,000	13,800	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2200	< 2	< 2	< 2	< 2	< 2	< 2
VINYL ACETATE	410,000	1,740	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2200	< 2	< 2	< 2	< 2	< 2	< 2
VINYL CHLORIDE	1,700	13.8	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1100	< 1	< 1	< 1	< 1	< 1	< 1
SVOC (ug/kg)																		
1,1'-BIPHENYL	21,000	174	ug/kg	**1300**	< 20	< 18	< 18	**29 J**	< 20	< 20	**220**	**45000**	**240**	< 20	< 21	**3600**	< 20	< 21
1,2-DICHLOROBENZENE	376,000	11,600	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1100	< 1	< 1	< 1	< 1	< 1	< 1
1,3-DICHLOROBENZENE	12,000	1,440	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1100	< 1	< 1	< 1	< 1	< 1	< 1
1,4-DICHLOROBENZENE	12,000	1,440	ug/kg	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1100	< 1	< 1	< 1	< 1	< 1	< 1
1,4-DIOXANE	17,000	2.8	ug/kg	< 110	< 120	< 110	< 110	< 120	< 120	< 120	< 120	< 120	< 120	< 120	< 120	< 1200	< 120	< 130
2,4,5-TRICHLOROPHENOL	6,200,000	66,000	ug/kg	< 18	< 20	< 18	< 18	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 21	< 200	< 20	< 21
2,4,6-TRICHLOROPHENOL	62,000	260	ug/kg	< 18	< 20	< 18	< 18	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 21	< 200	< 20	< 21
2,4-DICHLOROPHENOL	180,000	820	ug/kg	< 18	< 20	< 18	< 18	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 21	< 200	< 20	< 21
2,4-DIMETHYLPHENOL	1,200,000	6,400	ug/kg	< 18	< 20	< 18	< 18	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 21	< 200	< 20	< 21
2,4-DINITROPHENOL	120,000	680	ug/kg	< 360	< 410	< 360	< 350	< 400	< 400	< 400	< 410	< 390	< 390	< 410	< 410	< 3900	< 410	< 420
2,4-DINITROTOLUENE	5,500	5.6	ug/kg	< 72	< 81	< 72	< 70	< 80	< 81	< 81	< 82	< 79	< 79	< 81	< 83	< 780	< 81	< 83
2,6-DINITROTOLUENE	62,000	400	ug/kg	< 18	< 20	< 18	< 18	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 21	< 200	< 20	< 21
2-CHLORONAPHTHALENE	175,000	58,000	ug/kg	< 8	< 9	< 8	< 7	< 8	< 8	< 8	< 9	< 8	< 8	< 9	< 9	< 82	< 9	< 9
2-CHLOROPHENOL	510,000	1,140	ug/kg	< 18	< 20	< 18	< 18	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 21	< 200	< 20	< 21
2-METHYLNAPHTHALENE	368,000	2,800	ug/kg	**3500**	< 4	< 4	**5 J**	**81**	< 4	< 4	**4 J**	**360**	**71**	< 4	< 4	**360**	< 4	< 4
2-METHYLPHENOL	3,100,000	11,600	ug/kg	< 18	< 20	< 18	< 18	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 21	< 200	< 20	< 21

TABLE 5-7
SWMU 24 Soil Data
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Analyte	Industrial RSL[1]	Protection of Groundwater SSLs[2]	Location	S24-SS01				S24-SS02					S24-SS03			S24-SS04		
			Sample ID	S24-SS01-0002-121411	S24-SS01-0305-121411	S24-SS01-0810-121411	S24-SS01-2123-121411	S24-S33S02-0002-120711	HGR-120711-FD01	S24-SS02-0305-120711	S24-SS02-0810-120711	S24-SS02-1315-120711	S24-SS03-0002-120711	S24-SS03-0305-120711	S24-SS03-0810-120711	S24-SS04-0002-120711	S24-SS04-0305-120711	S24-SS04-0810-120711
			Sample Depth (ft)	0 - 2	3 - 5	8 - 10	21 - 23	0 - 2	3 - 5	3 - 5	8 - 10	13 - 15	0 - 2	3 - 5	8 - 10	0 - 2	3 - 5	8 - 10
			Sample Date	12/14/2011	12/14/2011	12/14/2011	12/14/2011	12/7/2011	12/7/2011	12/7/2011	12/7/2011	12/7/2011	12/7/2011	12/7/2011	12/7/2011	12/7/2011	12/7/2011	12/7/2011
			UNITS															
2-NITROANILINE	600,000	1,240	ug/kg	< 18	< 20	< 18	< 18	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 21	< 200	< 20	< 21
2-NITROPHENOL	510,000	1,140	ug/kg	< 18	< 20	< 18	< 18	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 21	< 200	< 20	< 21
3,3'-DICHLOROBENZIDINE	3,800	14.2	ug/kg	< 110	< 120	< 110	< 110	< 120	< 120	< 120	< 120	< 120	< 120	< 120	< 120	< 1200	< 120	< 130
3-NITROANILINE	600,000	1,240	ug/kg	< 72	< 81	< 72	< 70	< 80	< 81	< 81	< 82	< 79	< 79	< 81	< 83	< 780	< 81	< 83
4,6-DINITRO-2-METHYLPHENOL	4,900	40	ug/kg	< 180	< 200	< 180	< 180	< 200	< 200	< 200	< 200	< 200	< 200	< 200	< 210	< 2000	< 200	< 210
4-BROMOPHENYL-PHENYLETHER	- -	NA	- -	< 18	< 20	< 18	< 18	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 21	< 200	< 20	< 21
4-CHLORO-3-METHYLPHENOL	6,200,000	26,000	ug/kg	< 18	< 20	< 18	< 18	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 21	< 200	< 20	< 21
4-CHLOROANILINE	8,600	2.6	ug/kg	< 18	< 20	< 18	< 18	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 21	< 200	< 20	< 21
4-CHLOROPHENYL-PHENYLETHER	- -	NA	- -	< 18	< 20	< 18	< 18	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 21	< 200	< 20	< 21
4-METHYLPHENOL	310,000	1,140	ug/kg	< 18	< 20	< 18	< 18	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 21	< 200	< 20	< 21
4-NITROANILINE	86,000	28	ug/kg	< 72	< 81	< 72	< 70	< 80	< 81	< 81	< 82	< 79	< 79	< 81	< 83	< 780	< 81	< 83
4-NITROPHENOL	24,000	1.58	ug/kg	< 180	< 200	< 180	< 180	< 200	< 200	< 200	< 200	< 200	< 200	< 200	< 210	< 2000	< 200	< 210
ACENAPHTHENE	3,300,000	82,000	ug/kg	**790**	< 4	< 4	< 4	**150**	< 4	< 4	< 4	< 4	**360**	< 4	< 4	**530**	< 4	< 4
ACENAPHTHYLENE	3,300,000	82,000	ug/kg	**360**	**22**	**6 J**	**4 J**	**230**	< 4	**12 J**	< 4	< 4	**11 J**	< 4	< 4	**95 J**	< 4	< 4
ANTHRACENE	17,000,000	840,000	ug/kg	**780**	< 4	< 4	< 4	**190**	< 4	< 4	< 4	**24**	**450**	< 4	< 4	**390**	< 4	< 4
BENZO(A)ANTHRACENE	2,100	200	ug/kg	**4200**	< 4	< 4	**5 J**	**1100**	< 4	< 4	< 4	**9 J**	**740**	< 4	< 4	**1000**	< 4	< 4
BENZO(A)PYRENE	210	4,800	ug/kg	**3700**	< 4	< 4	**4 J**	**4100**	< 4	< 4	< 4	< 4	**710**	< 4	< 4	**1000**	< 4	< 4
BENZO(B)FLUORANTHENE	2,100	700	ug/kg	**7400**	< 4	< 4	**10 J**	**5100**	**5 J**	**4 J**	< 4	< 4	**930**	< 4	< 4	**1400**	**4 J**	< 4
BENZO(G,H,I)PERYLENE	1,700,000	190,000	ug/kg	**2800**	< 4	< 4	< 4	**3900**	< 4	< 4	< 4	< 4	**500**	< 4	< 4	**810**	< 4	< 4
BENZO(K)FLUORANTHENE	21,000	7,000	ug/kg	**2400**	< 4	< 4	< 4	**2500**	< 4	< 4	< 4	< 4	**390**	< 4	< 4	**700**	< 4	< 4
BENZYL ALCOHOL	6,200,000	7,400	ug/kg	< 180	< 200	< 180	< 180	< 200	< 200	< 200	< 200	< 200	< 200	< 200	< 210	< 2000	< 200	< 210
BIS(2-CHLOROETHOXY)METHANE	180,000	220	ug/kg	< 18	< 20	< 18	< 18	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 21	< 200	< 20	< 21
BIS(2-CHLOROETHYL)ETHER	1,000	0.062	ug/kg	< 18	< 20	< 18	< 18	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 21	< 200	< 20	< 21
BIS(2-ETHYLHEXYL)PHTHALATE	120,000	28,000	ug/kg	**130 J**	< 81	< 72	< 70	< 80	< 81	< 81	< 82	**85 J**	< 79	< 81	< 83	< 780	< 81	< 83
BUTYLBENZYLPHTHALATE	910,000	4,000	ug/kg	< 72	< 81	< 72	< 70	< 80	< 81	< 81	< 82	< 79	< 79	< 81	< 83	< 780	< 81	< 83
CARBAZOLE	- -	NA	- -	**280**	< 20	< 18	< 18	**60**	< 20	< 20	< 20	< 20	**260**	< 20	< 21	< 200	< 20	< 21
CHRYSENE	210,000	22,000	ug/kg	**4500**	< 4	< 4	**22**	**1300**	< 4	< 4	< 4	**6 J**	**720**	< 4	< 4	**1100**	< 4	< 4
DI-N-BUTYLPHTHALATE	6,200,000	34,000	ug/kg	< 72	< 81	< 72	< 70	< 80	< 81	< 81	< 82	< 79	< 79	< 81	< 83	< 780	< 81	< 83
DI-N-OCTYLPHTHALATE	- -	NA	- -	< 72	< 81	< 72	< 70	< 80	< 81	< 81	< 82	< 79	< 79	< 81	< 83	< 780	< 81	< 83
DIBENZ(A,H)ANTHRACENE	210	220	ug/kg	**990**	< 4	< 4	< 4	**950**	< 4	< 4	< 4	< 4	**84**	< 4	< 4	**210**	< 4	< 4
DIBENZOFURAN	100,000	2,200	ug/kg	**5800**	< 20	< 18	< 18	**98**	< 20	< 20	< 20	**130**	**190**	< 20	< 21	**480**	< 20	< 21
DIETHYLPHTHALATE	49,000,000	94,000	ug/kg	< 72	< 81	< 72	< 70	< 80	< 81	< 81	< 82	< 79	< 79	< 81	< 83	< 780	< 81	< 83
DIMETHYLPHTHALATE	- -	NA	- -	< 72	< 81	< 72	< 70	< 80	< 81	< 81	< 82	< 79	< 79	< 81	< 83	< 780	< 81	< 83
FLUORANTHENE	2,200,000	1,400,000	ug/kg	**11000**	**6 J**	**9 J**	**14 J**	**890**	< 4	< 4	< 4	**18 J**	**2200**	< 4	< 4	**2800**	**4 J**	< 4
FLUORENE	2,200,000	80,000	ug/kg	**110**	**8 J**	< 4	< 4	**130**	< 4	**7 J**	< 4	< 4	**300**	< 4	< 4	**330**	< 4	**5 J**
HEXACHLOROBENZENE	1,100	260	ug/kg	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 39	< 4	< 4
HEXACHLOROCYCLOPENTADIENE	370,000	3,200	ug/kg	< 180	< 200	< 180	< 180	< 200	< 200	< 200	< 200	< 200	< 200	< 200	< 210	< 2000	< 200	< 210
HEXACHLOROETHANE	43,000	9.6	ug/kg	< 36	< 41	< 36	< 35	< 40	< 40	< 40	< 41	< 39	< 39	< 41	< 41	< 390	< 41	< 42
INDENO(1,2,3-CD)PYRENE	2,100	2,400	ug/kg	**2800**	< 4	< 4	< 4	**3800**	< 4	< 4	< 4	< 4	**420**	< 4	< 4	**760**	< 4	< 4
ISOPHORONE	1,800,000	440	ug/kg	< 18	< 20	< 18	< 18	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 21	< 200	< 20	< 21
N-NITROSO-DI-N-PROPYLAMINE	250	0.14	ug/kg	< 18	< 20	< 18	< 18	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 21	< 200	< 20	< 21
N-NITROSODIPHENYLAMINE	350,000	1,140	ug/kg	< 18	< 20	< 18	< 18	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 21	< 200	< 20	< 21
NITROBENZENE	24,000	1.58	ug/kg	< 18	< 20	< 18	< 18	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 21	< 200	< 20	< 21
PENTACHLOROPHENOL	2,700	200	ug/kg	< 36	< 41	< 36	< 35	< 40	< 40	< 40	< 41	< 39	< 39	< 41	< 41	< 390	< 41	< 42
PHENANTHRENE	17,000,000	840,000	ug/kg	**5200**	**6 J**	**6 J**	**65**	**180**	< 4	< 4	< 4	**150**	**2200**	< 4	< 4	**1500**	**7 J**	< 4
PHENOL	18,000,000	52,000	ug/kg	**65**	< 20	< 18	< 18	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 21	< 200	< 20	< 21
PYRENE	1,700,000	190,000	ug/kg	**11000**	**8 J**	**11 J**	**16 J**	**930**	< 4	< 4	< 4	**51**	**1800**	< 4	< 4	**2100**	< 4	< 4
METAL (MG/KG)																		
ARSENIC	1.6	5.8	mg/kg	**2.16**	**14.7**	**6.63**	**5.68**	**5.73**	**18.5**	**16.9**	**15.1**	**21**	**15.7**	**14.2**	**18.4**	**9.08 J**	**16.6**	**17.6**
BARIUM	19,000	1,640	mg/kg	**261**	**91.1**	**54.4**	**61.7**	**740**	**104**	**100**	**144**	**65.3**	**141**	**108**	**96.3**	**219 J**	**104**	**143**
CADMIUM	80	7.6	mg/kg	**1.1**	**1.12**	**0.679**	**0.3 J**	**0.404 J**	**1.46**	**1.3**	**1.38**	**1.04**	**1.45**	**1.36**	**1.45**	**1.05**	**1.41**	**1.43**
CHROMIUM	150,000	560,000,000	mg/kg	**18.4**	**15.6**	**7.41**	**4.23**	**23.2**	**27.4**	**26.1**	**22**	**13.2**	**18.8**	**22.6**	**18.5**	**25.7 J**	**23.6**	**25**
LEAD	80	280	mg/kg	**6.35**	**12.7**	**3.82**	**3.7**	**7.33**	**12.8**	**12.3**	**15.2**	**9.92**	**14.9**	**9.12**	**16.7**	**18.6 J**	**20.1**	**15.7**
MERCURY	3.13	2	mg/kg	< 0.0073	**0.0133 J**	< 0.0075	< 0.0072	< 0.0081	**0.0126 J**	**0.0156 J**	**0.0132 J**	**0.0173 J**	**0.0918 J**	**0.0227 J**	**0.0105 J**	**0.0316 J**	**0.0204 J**	**0.0228 J**
SELENIUM	510	5.2	mg/kg	**4.99**	< 0.815	< 0.714	< 0.704	**2 J**	**4.66**	**3.95**	**2.93**	**2.57**	< 1.47	< 1.5	< 0.991	**3.25**	**3.72**	**4.18**
SILVER	510	12	mg/kg	< 0.0879	< 0.0995	< 0.0871	< 0.0859	< 0.097	< 0.0976	< 0.0984	< 0.0986	< 0.0979	< 0.097	< 0.0974	< 0.102	< 0.0963	< 0.1	< 0.101
GENERAL CHEM (percent)																		
MOISTURE	- -	- -	- -	**7.4**	**18.2**	**7.5**	**5.3**	**16.9**	**17.4**	**17.3**	**18.3**	**15.2**	**15.3**	**18.1**	**19.3**	**14.7**	**18.7**	**20.1**

Notes:
[1]USEPA Industrial Regional Screening Level (RSL) based on 1x10^{-6} or HQ = 0.1 (November 2011)
[2]USEPA Protection of Groundwater Soil Screening Level (SSL) based dilution attenuation factor of 20 (November 2011)
NA = Not analyzed
J = The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.
< = The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was below the reported sample quantitation limit. However, the reported value is approximate.
mg/kg = Milligrams per Kilogram
ug/kg = Micrograms per Kilogram
Shading indicates the result exceeded industrial soil RSL
Box indicates the result exceeded protection of groundwater SSL

TABLE 5-7
SWMU 24 Soil Data
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

	S24-SS05			S24-SS06			S24-SS07			S24-SS08			
	S24-SS05-0002-120811	S24-SS05-0305-120811	S24-SS05-0810-120811	S24-SS06-0002-120911	S24-SS06-0305-120911	S24-SS06-0810-120911	S24-SS07-0002-120911	S24-SS07-0305-120911	S24-SS07-0810-120911	S24-SS08-0002-120911	S24-SS08-0305-120911	S24-SS08-0810-120911	S24-SS08-1315-120911
	0 - 2	3 - 5	8 - 10	0 - 2	3 - 5	8 - 10	0 - 2	3 - 5	8 - 10	0 - 2	3 - 5	8 - 10	13 - 15
	12/8/2011	12/8/2011	12/8/2011	12/9/2011	12/9/2011	12/9/2011	12/9/2011	12/9/2011	12/9/2011	12/9/2011	12/9/2011	12/9/2011	12/9/2011
Analyte													
VOC (ug/kg)													
1,1,1,2-TETRACHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,1-TRICHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2,2-TETRACHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2-TRICHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1-DICHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1-DICHLOROETHENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1-DICHLOROPROPENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2,3-TRICHLOROBENZENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2,3-TRICHLOROPROPANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2,4-TRICHLOROBENZENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2,4-TRIMETHYLBENZENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2-DIBROMO-3-CHLOROPROPANE	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
1,2-DIBROMOETHANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2-DICHLOROETHANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2-DICHLOROPROPANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,3,5-TRIMETHYLBENZENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,3-DICHLOROPROPANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2,2-DICHLOROPROPANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2-BUTANONE	**21**	**4 J**	< 5	< 4	< 4	< 5	< 4	**5 J**	**5 J**	**10 J**	< 4	< 4	< 4
2-CHLOROTOLUENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2-HEXANONE	< 4	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 4	< 3	< 3	< 3
4-CHLOROTOLUENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
4-METHYL-2-PENTANONE	< 4	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 4	< 3	< 3	< 3
ACETONE	**180 J**	**39 J**	< 8	**35 J**	**68 J**	**12 J**	**13 J**	**39 J**	**37 J**	**84 J**	< 8	< 7	**24 J**
BENZENE	< 0.6	< 0.5	< 0.6	**2 J**	< 0.5	< 0.6	< 0.5	< 0.5	< 0.6	< 0.6	< 0.6	< 0.5	< 0.6
BROMOBENZENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOCHLOROMETHANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMODICHLOROMETHANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOFORM	< 1	< 1	< 1	< 1	< 1	< 1	< 1	**2 J**	< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
CARBON DISULFIDE	< 1	< 1	< 1	**5**	< 1	< 1	< 1	< 1	< 1	< 1	**1 J**	< 1	< 1
CARBON TETRACHLORIDE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROBENZENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
CHLOROFORM	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
CIS-1,2-DICHLOROETHENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CIS-1,3-DICHLOROPROPENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CYCLOHEXANE	< 1	< 1	< 1	**5 J**	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
DIBROMOCHLOROMETHANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
DIBROMOMETHANE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
DICHLORODIFLUOROMETHANE	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
ETHYLBENZENE	< 1	< 1	< 1	**1 J**	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
FREON 113	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
HEXACHLOROBUTADIENE	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
ISOPROPYLBENZENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
M+P-XYLENE	< 1	< 1	< 1	**2 J**	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
METHYL ACETATE	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
METHYL TERTIARY BUTYL ETHER	< 0.6	< 0.5	< 0.6	< 0.5	< 0.5	< 0.6	< 0.5	< 0.5	< 0.6	< 0.6	< 0.6	< 0.5	< 0.6
METHYLCYCLOHEXANE	< 1	< 1	< 1	**6**	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
METHYLENE CHLORIDE	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
N-BUTYLBENZENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
N-PROPYLBENZENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
NAPHTHALENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
O-XYLENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
P-ISOPROPYLTOLUENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
SEC-BUTYLBENZENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
STYRENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TERT-BUTYLBENZENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TETRACHLOROETHENE	< 1	< 1	< 1	< 1	< 1	< 1	**4 J**	**8**	**8**	< 1	< 1	< 1	< 1
TOLUENE	< 1	< 1	< 1	**5 J**	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1,2-DICHLOROETHENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1,3-DICHLOROPROPENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROETHENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
VINYL ACETATE	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
VINYL CHLORIDE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
SVOC (ug/kg)													
1,1'-BIPHENYL	< 20	< 20	< 20	< 20	< 21	< 21	< 20	< 21	< 21	< 21	< 21	< 20	< 17
1,2-DICHLOROBENZENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	**1 J**	< 1	< 1	< 1	< 1	< 1
1,3-DICHLOROBENZENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,4-DICHLOROBENZENE	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,4-DIOXANE	< 120	< 120	< 120	< 120	< 130	< 120	< 120	< 120	< 130	< 130	< 130	< 120	< 100
2,4,5-TRICHLOROPHENOL	< 20	< 20	< 20	< 20	< 21	< 21	< 20	< 21	< 21	< 21	< 21	< 20	< 17
2,4,6-TRICHLOROPHENOL	< 20	< 20	< 20	< 20	< 21	< 21	< 20	< 21	< 21	< 21	< 21	< 20	< 17
2,4-DICHLOROPHENOL	< 20	< 20	< 20	< 20	< 21	< 21	< 20	< 21	< 21	< 21	< 21	< 20	< 17
2,4-DIMETHYLPHENOL	< 20	< 20	< 20	< 20	< 21	< 21	< 20	< 21	< 21	< 21	< 21	< 20	< 17
2,4-DINITROPHENOL	< 410	< 400	< 410	< 390	< 420	< 410	< 410	< 410	< 430	< 420	< 420	< 410	< 350
2,4-DINITROTOLUENE	< 82	< 80	< 82	< 79	< 84	< 83	< 81	< 82	< 86	< 84	< 83	< 81	< 70
2,6-DINITROTOLUENE	< 20	< 20	< 20	< 20	< 21	< 21	< 20	< 21	< 21	< 21	< 21	< 20	< 17
2-CHLORONAPHTHALENE	< 9	< 8	< 9	< 8	< 9	< 9	< 9	< 9	< 9	< 9	< 9	< 9	< 7
2-CHLOROPHENOL	< 20	< 20	< 20	< 20	< 21	< 21	< 20	< 21	< 21	< 21	< 21	< 20	< 17
2-METHYLNAPHTHALENE	**5 J**	< 4	< 4	**7 J**	< 4	< 4	< 4	< 4	< 4	**5 J**	< 4	< 4	< 3
2-METHYLPHENOL	< 20	< 20	< 20	< 20	< 21	< 21	< 20	< 21	< 21	< 21	< 21	< 20	< 17

TABLE 5-7
SWMU 24 Soil Data
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

	S24-SS05			S24-SS06			S24-SS07			S24-SS08			
	S24-SS05-0002-120811	S24-SS05-0305-120811	S24-SS05-0810-120811	S24-SS06-0002-120911	S24-SS06-0305-120911	S24-SS06-0810-120911	S24-SS07-0002-120911	S24-SS07-0305-120911	S24-SS07-0810-120911	S24-SS08-0002-120911	S24-SS08-0305-120911	S24-SS08-0810-120911	S24-SS08-1315-120911
	0 - 2	3 - 5	8 - 10	0 - 2	3 - 5	8 - 10	0 - 2	3 - 5	8 - 10	0 - 2	3 - 5	8 - 10	13 - 15
	12/8/2011	12/8/2011	12/8/2011	12/9/2011	12/9/2011	12/9/2011	12/9/2011	12/9/2011	12/9/2011	12/9/2011	12/9/2011	12/9/2011	12/9/2011
Analyte													
2-NITROANILINE	< 20	< 20	< 20	< 20	< 21	< 21	< 20	< 21	< 21	< 21	< 21	< 20	< 17
2-NITROPHENOL	< 20	< 20	< 20	< 20	< 21	< 21	< 20	< 21	< 21	< 21	< 21	< 20	< 17
3,3'-DICHLOROBENZIDINE	< 120	< 120	< 120	< 120	< 130	< 120	< 120	< 120	< 130	< 130	< 130	< 120	< 100
3-NITROANILINE	< 82	< 80	< 82	< 79	< 84	< 83	< 81	< 82	< 86	< 84	< 83	< 81	< 70
4,6-DINITRO-2-METHYLPHENOL	< 200	< 200	< 200	< 200	< 210	< 210	< 200	< 210	< 210	< 210	< 210	< 200	< 170
4-BROMOPHENYL-PHENYLETHER	< 20	< 20	< 20	< 20	< 21	< 21	< 20	< 21	< 21	< 21	< 21	< 20	< 17
4-CHLORO-3-METHYLPHENOL	< 20	< 20	< 20	< 20	< 21	< 21	< 20	< 21	< 21	< 21	< 21	< 20	< 17
4-CHLOROANILINE	< 20	< 20	< 20	< 20	< 21	< 21	< 20	< 21	< 21	< 21	< 21	< 20	< 17
4-CHLOROPHENYL-PHENYLETHER	< 20	< 20	< 20	< 20	< 21	< 21	< 20	< 21	< 21	< 21	< 21	< 20	< 17
4-METHYLPHENOL	< 20	< 20	< 20	< 20	< 21	< 21	< 20	< 21	< 21	< 21	< 21	< 20	< 17
4-NITROANILINE	< 82	< 80	< 82	< 79	< 84	< 83	< 81	< 82	< 86	< 84	< 83	< 81	< 70
4-NITROPHENOL	< 200	< 200	< 200	< 200	< 210	< 210	< 200	< 210	< 210	< 210	< 210	< 200	< 170
ACENAPHTHENE	**9 J**	< 4	< 4	**14 J**	**6 J**	< 4	< 4	< 4	< 4	**5 J**	< 4	< 4	< 3
ACENAPHTHYLENE	**14 J**	**5 J**	< 4	**45**	**14 J**	< 4	< 4	< 4	< 4	**5 J**	< 4	< 4	< 3
ANTHRACENE	**25**	**8 J**	< 4	**100**	**16 J**	< 4	< 4	< 4	< 4	**9 J**	< 4	< 4	< 3
BENZO(A)ANTHRACENE	**120**	**38**	< 4	**450**	**73**	< 4	**6 J**	< 4	< 4	**41**	< 4	< 4	< 3
BENZO(A)PYRENE	**140**	**44**	< 4	**430**	**110**	< 4	**9 J**	< 4	< 4	**57**	< 4	< 4	< 3
BENZO(B)FLUORANTHENE	**200**	**59**	< 4	**520**	**140**	< 4	**16 J**	< 4	< 4	**76**	< 4	< 4	< 3
BENZO(G,H,I)PERYLENE	**98**	**33**	< 4	**300**	**75**	< 4	**16 J**	< 4	< 4	**43**	< 4	< 4	< 3
BENZO(K)FLUORANTHENE	**79**	**26**	< 4	**330**	**80**	< 4	**5 J**	< 4	< 4	**44**	< 4	< 4	< 3
BENZYL ALCOHOL	< 200	< 200	< 200	< 200	< 210	< 210	< 200	< 210	< 210	< 210	< 210	< 200	< 170
BIS(2-CHLOROETHOXY)METHANE	< 20	< 20	< 20	< 20	< 21	< 21	< 20	< 21	< 21	< 21	< 21	< 20	< 17
BIS(2-CHLOROETHYL)ETHER	< 20	< 20	< 20	< 20	< 21	< 21	< 20	< 21	< 21	< 21	< 21	< 20	< 17
BIS(2-ETHYLHEXYL)PHTHALATE	< 82	< 80	< 82	< 79	< 84	< 83	< 81	< 82	< 86	< 84	< 83	< 81	< 70
BUTYLBENZYLPHTHALATE	< 82	< 80	< 82	< 79	< 84	< 83	< 81	< 82	< 86	< 84	< 83	< 81	< 70
CARBAZOLE	< 20	< 20	< 20	**25 J**	< 21	< 21	< 20	< 21	< 21	< 21	< 21	< 20	< 17
CHRYSENE	**140**	**41**	< 4	**450 J**	**110**	< 4	**9 J**	< 4	< 4	**57**	< 4	< 4	**4 J**
DI-N-BUTYLPHTHALATE	< 82	< 80	< 82	< 79	< 84	< 83	< 81	< 82	< 86	< 84	< 83	< 81	< 70
DI-N-OCTYLPHTHALATE	< 82	< 80	< 82	< 79	< 84	< 83	< 81	< 82	< 86	< 84	< 83	< 81	< 70
DIBENZ(A,H)ANTHRACENE	**22**	**8 J**	< 4	**63**	**19 J**	< 4	< 4	< 4	< 4	**10 J**	< 4	< 4	< 3
DIBENZOFURAN	< 20	< 20	< 20	**24 J**	< 21	< 21	< 20	< 21	< 21	< 21	< 21	< 20	< 17
DIETHYLPHTHALATE	< 82	< 80	< 82	< 79	< 84	< 83	< 81	< 82	< 86	< 84	< 83	< 81	< 70
DIMETHYLPHTHALATE	< 82	< 80	< 82	< 79	< 84	< 83	< 81	< 82	< 86	< 84	< 83	< 81	< 70
FLUORANTHENE	**340**	**100**	< 4	**1200 J**	**200**	< 4	**11 J**	< 4	< 4	**110**	< 4	< 4	< 3
FLUORENE	**8 J**	< 4	< 4	**29**	**7 J**	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 3
HEXACHLOROBENZENE	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 3
HEXACHLOROCYCLOPENTADIENE	< 200	< 200	< 200	< 200	< 210	< 210	< 200	< 210	< 210	< 210	< 210	< 200	< 170
HEXACHLOROETHANE	< 41	< 40	< 41	< 39	< 42	< 41	< 41	< 41	< 43	< 42	< 42	< 41	< 35
INDENO(1,2,3-CD)PYRENE	**88**	**29**	< 4	**250**	**64**	< 4	**12 J**	< 4	< 4	**43**	< 4	< 4	< 3
ISOPHORONE	< 20	< 20	< 20	< 20	< 21	< 21	< 20	< 21	< 21	< 21	< 21	< 20	< 17
N-NITROSO-DI-N-PROPYLAMINE	< 20	< 20	< 20	< 20	< 21	< 21	< 20	< 21	< 21	< 21	< 21	< 20	< 17
N-NITROSODIPHENYLAMINE	< 20	< 20	< 20	< 20	< 21	< 21	< 20	< 21	< 21	< 21	< 21	< 20	< 17
NITROBENZENE	< 20	< 20	< 20	< 20	< 21	< 21	< 20	< 21	< 21	< 21	< 21	< 20	< 17
PENTACHLOROPHENOL	< 41	< 40	< 41	< 39	< 42	< 41	< 41	< 41	< 43	< 42	< 42	< 41	< 35
PHENANTHRENE	**160**	**49**	< 4	**720**	**86**	< 4	**9 J**	< 4	< 4	**50**	< 4	< 4	**10 J**
PHENOL	< 20	< 20	< 20	< 20	< 21	< 21	< 20	< 21	< 21	< 21	< 21	< 20	< 17
PYRENE	**260**	**78**	< 4	**930 J**	**170**	< 4	**12 J**	< 4	**5 J**	**93**	< 4	< 4	< 3
METAL (MG/KG)													
ARSENIC	**11.8**	**14.7**	**12**	**13.4**	**14.8**	**14.5**	**16.3**	**15.9**	**13.9**	**14.2**	**12.6 J**	**11.1**	**7.06**
BARIUM	**117**	**116**	**136**	**123**	**140**	**119**	**92.1**	**109**	**64.3**	**82.3**	**73.2**	**48.6**	**46**
CADMIUM	**1.34**	**1.41**	**1.52**	**1.38**	**1.35**	**1.34**	**1.5**	**1.38**	**1.17**	**1.55**	**1.35**	**1.01**	**0.52**
CHROMIUM	**22.2**	**23.3**	**22.1**	**25.9**	**32.3**	**18.6**	**26.8**	**22.8**	**14.7**	**26.2**	**19.1**	**11.2**	**7.83**
LEAD	**22.3**	**17.4**	**16.7**	**17.1**	**17.2**	**13.7**	**17.8**	**16.4**	**12.9**	**17**	**14.6**	**11.4**	**6.24**
MERCURY	**0.0298 J**	**0.027 J**	**0.0185 J**	**0.0163 J**	**0.023 J**	< 0.0087	**0.0138 J**	**0.0153 J**	**0.0151 J**	**0.0169 J**	**0.0208 J**	**0.0171 J**	< 0.0069
SELENIUM	**3.31**	**3.85**	**3.65**	**3.13**	**3.49**	**2.98**	**4.43**	**3.59**	**2.87**	**4.19**	< 0.825	< 0.822	< 0.692
SILVER	< 0.101	< 0.0964	< 0.098	< 0.094	< 0.103	< 0.0993	< 0.099	< 0.0984	< 0.105	< 0.101	< 0.101	< 0.1	< 0.0845
GENERAL CHEM (percent)													
MOISTURE	**18.4**	**16.4**	**18.6**	**15.1**	**20.9**	**19.6**	**17.8**	**18.9**	**22.2**	**21.1**	**20**	**18.1**	**4.6**

Notes:
[1]USEPA Industrial Regional Screening Level (RSL) based on 1x10^{-6} or HQ = 0.1 (November 2011)
[2]USEPA Protection of Groundwater Soil Screening Level (SSL) based dilution attenuation factor of 20 (November 2011)
NA = Not analyzed
J = The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.
< = The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was below the reported sample quantitation limit. However, the reported value is approximate.
mg/kg = Milligrams per Kilogram
ug/kg = Micrograms per Kilogram
Shading indicates the result exceeded industrial soil RSL
Box indicates the result exceeded protection of groundwater SSL

TABLE 5-8
SWMU 25-28 Soil Data
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Analyte	Industrial RSL[1]	Protection of Groundwater SSLs[2]	Location	S25-SS01			S25-SS02			S25-SS03				S25-SS04		
			Sample ID	S25-SS01-0002-120711	S25-SS01-0305-120711	S25-SS01-0810-120711	S25-SS02-0002-120711	S25-SS02-0305-120711	S25-SS02-0810-120711	S25-SS03-0002-120711	S25-SS03-0305-120711	HGR-120711-FD02	S25-SS03-0810-120711	S25-SS04-0002-120711	S25-SS04-0305-120711	S25-SS04-0810-120711
			Sample Depth (ft)	0 - 2	3 - 5	8 - 10	0 - 2	3 - 5	8 - 10	0 - 2	3 - 5	8 - 10	8 - 10	0 - 2	3 - 5	8 - 10
			Sample Date	12/7/2011	12/7/2011	12/7/2011	12/7/2011	12/7/2011	12/7/2011	12/7/2011	12/7/2011	12/7/2011	12/7/2011	12/7/2011	12/7/2011	12/7/2011
			UNITS													
VOC (ug/kg)																
1,1,1,2-TETRACHLOROETHANE	9,300	3.8	ug/kg	< 0.9	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
1,1,1-TRICHLOROETHANE	640,000	1,400	ug/kg	< 0.9	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
1,1,2,2-TETRACHLOROETHANE	2,800	0.52	ug/kg	< 0.9	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
1,1,2-TRICHLOROETHANE	680	32	ug/kg	< 0.9	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
1,1-DICHLOROETHANE	17,000	13.6	ug/kg	< 0.9	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
1,1-DICHLOROETHENE	110,000	50	ug/kg	< 0.9	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
1,1-DICHLOROPROPENE	110,000	50	ug/kg	< 0.9	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
1,2,3-TRICHLOROBENZENE	49,000	300	ug/kg	< 0.9	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
1,2,3-TRICHLOROPROPANE	95	0.0056	ug/kg	< 0.9	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
1,2,4-TRICHLOROBENZENE	27,000	4,000	ug/kg	< 0.9	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
1,2,4-TRIMETHYLBENZENE	26,000	420	ug/kg	**2 J**	< 1	< 1	< 0.9	< 1	< 1	**3 J**	< 1	**5 J**	**3 J**	< 0.9	< 1	< 1
1,2-DIBROMO-3-CHLOROPROPANE	69	1.72	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
1,2-DIBROMOETHANE	170	0.28	ug/kg	< 0.9	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
1,2-DICHLOROETHANE	2,200	28	ug/kg	< 0.9	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
1,2-DICHLOROPROPANE	4,700	34	ug/kg	< 0.9	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
1,3,5-TRIMETHYLBENZENE	182,000	2,400	ug/kg	< 0.9	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	**640 J**	**1000 J**	< 0.9	< 1	< 1
1,3-DICHLOROPROPANE	1,490,000	1,980	ug/kg	< 0.9	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
2,2-DICHLOROPROPANE	4,700	34	ug/kg	< 0.9	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
2-BUTANONE	20,000,000	20,000	ug/kg	< 4	< 4	< 4	< 4	< 4	< 5	**6 J**	**14**	**5 J**	**9 J**	**4 J**	**8 J**	**5 J**
2-CHLOROTOLUENE	907,000	3400	ug/kg	< 0.9	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
2-HEXANONE	140,000	158	ug/kg	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3
4-CHLOROTOLUENE	253,000	3,600	ug/kg	< 0.9	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
4-METHYL-2-PENTANONE	3,360,000	4,600	ug/kg	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3	< 3
ACETONE	63,000,000	48,000	ug/kg	**14 J**	**24 J**	**8 J**	**23**	**23 J**	**43**	**22 J**	**80 J**	**54**	**50 J**	**24 J**	**48 J**	**37 J**
BENZENE	5,400	52	ug/kg	**4 J**	< 0.6	< 0.5	**2 J**	< 0.5	< 0.6	**4 J**	**4 J**	**3 J**	**0.7 J**	**0.6 J**	**1 J**	< 0.5
BROMOBENZENE	180,000	720	ug/kg	< 0.9	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
BROMOCHLOROMETHANE	68,000	420	ug/kg	< 0.9	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
BROMODICHLOROMETHANE	1,400	440	ug/kg	< 0.9	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
BROMOFORM	220,000	420	ug/kg	< 0.9	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
BROMOMETHANE	3,200	36	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
CARBON DISULFIDE	370,000	4,200	ug/kg	**6**	< 1	< 1	**1 J**	< 1	< 1	**6**	< 1	< 1	< 1	**2 J**	< 1	< 1
CARBON TETRACHLORIDE	3,000	38	ug/kg	< 0.9	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
CHLOROBENZENE	140,000	1,360	ug/kg	< 0.9	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
CHLOROETHANE	2,120,000	118,000	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
CHLOROFORM	1,500	440	ug/kg	< 0.9	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
CHLOROMETHANE	50,000	980	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
CIS-1,2-DICHLOROETHENE	200,000	420	ug/kg	< 0.9	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
CIS-1,3-DICHLOROPROPENE	8,300	3	ug/kg	< 0.9	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
CYCLOHEXANE	117,000	260,000	ug/kg	**8**	< 1	< 1	**10**	< 1	< 1	**10**	< 1	< 1	< 1	**1 J**	< 1	< 1
DIBROMOCHLOROMETHANE	3,300	420	ug/kg	< 0.9	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
DIBROMOMETHANE	11,000	38	ug/kg	< 0.9	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
DICHLORODIFLUOROMETHANE	40,000	6,000	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
ETHYLBENZENE	27,000	15,600	ug/kg	**3 J**	< 1	< 1	< 0.9	< 1	< 1	**3 J**	**97**	**280 J**	**3700 J**	< 0.9	< 1	< 1
FREON 113	910,000	2,600,000	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
HEXACHLOROBUTADIENE	22,000	10	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
ISOPROPYLBENZENE	268,000	12,800	ug/kg	< 0.9	< 1	< 1	< 0.9	< 1	< 1	< 1	**18**	**430 J**	**1200 J**	< 0.9	< 1	< 1
M+P-XYLENE	250,000	3,600	ug/kg	**3 J**	< 1	< 1	< 0.9	< 1	< 1	**4 J**	**4 J**	**150**	**28**	< 0.9	< 1	< 1
METHYL ACETATE	29,000,000	64,000	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
METHYL TERTIARY BUTYL ETHER	220,000	56	ug/kg	< 0.5	< 0.6	< 0.5	< 0.5	< 0.5	< 0.6	< 0.5	< 0.5	< 0.5	< 0.6	< 0.4	< 0.6	< 0.5
METHYLCYCLOHEXANE	- -	NA	- -	**12**	< 1	< 1	**14**	< 1	< 1	**12**	< 1	< 1	< 1	**2 J**	< 1	< 1
METHYLENE CHLORIDE	53,000	26	ug/kg	< 2	< 2	< 2	**2 J**	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
N-BUTYLBENZENE	108,000	50,000	ug/kg	< 0.9	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
N-PROPYLBENZENE	264,000	19,800	ug/kg	< 0.9	< 1	< 1	< 0.9	< 1	< 1	< 1	**3 J**	**530 J**	**1100 J**	< 0.9	< 1	< 1
NAPHTHALENE	18,000	9.4	ug/kg	< 0.9	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	**17**	**8**	< 0.9	< 1	< 1
O-XYLENE	300,000	3,800	ug/kg	**1 J**	< 1	< 1	< 0.9	< 1	< 1	**2 J**	**5**	**130**	**34**	< 0.9	< 1	< 1
P-ISOPROPYLTOLUENE	268,000	12,800	ug/kg	< 0.9	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
SEC-BUTYLBENZENE	268,000	12,800	ug/kg	< 0.9	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	**61 J**	**13 J**	< 0.9	< 1	< 1
STYRENE	867,000	2,200	ug/kg	< 0.9	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
TERT-BUTYLBENZENE	268,000	12,800	ug/kg	< 0.9	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	**1 J**	< 1	< 0.9	< 1	< 1
TETRACHLOROETHENE	2,600	46	ug/kg	< 0.9	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	**20**	**4 J**	< 0.9	< 1	< 1
TOLUENE	818,000	13,800	ug/kg	**8**	< 1	< 1	**2 J**	< 1	< 1	**9**	**3 J**	**7**	**1 J**	**1 J**	< 1	< 1
TRANS-1,2-DICHLOROETHENE	69,000	580	ug/kg	< 0.9	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
TRANS-1,3-DICHLOROPROPENE	8,300	3	ug/kg	< 0.9	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
TRICHLOROETHENE	2,000	36	ug/kg	< 0.9	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
TRICHLOROFLUOROMETHANE	340,000	13,800	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
VINYL ACETATE	410,000	1,740	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
VINYL CHLORIDE	1,700	13.8	ug/kg	< 0.9	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
SVOC (ug/kg)																
1,1'-BIPHENYL	21,000	174	ug/kg	< 89	< 20	< 21	**38**	< 21	< 21	**61**	**1300**	**73000 J**	**28000 J**	**220**	**26 J**	< 21
1,2-DICHLOROBENZENE	376,000	11,600	ug/kg	< 0.9	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
1,3-DICHLOROBENZENE	12,000	1,440	ug/kg	< 0.9	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
1,4-DICHLOROBENZENE	12,000	1,440	ug/kg	< 0.9	< 1	< 1	< 0.9	< 1	< 1	< 1	< 1	< 1	< 1	< 0.9	< 1	< 1
1,4-DIOXANE	17,000	2.8	ug/kg	< 530	< 120	< 130	< 110	< 120	< 130	< 110	< 120	< 120	< 120	< 120	< 120	< 120
2,4,5-TRICHLOROPHENOL	6,200,000	66,000	ug/kg	< 89	< 20	< 21	**25 J**	< 21	< 21	< 18	< 20	< 20	< 20	< 19	< 21	< 21
2,4,6-TRICHLOROPHENOL	62,000	260	ug/kg	< 89	< 20	< 21	< 19	< 21	< 21	< 18	< 20	< 20	< 20	< 19	< 21	< 21
2,4-DICHLOROPHENOL	180,000	820	ug/kg	< 89	< 20	< 21	< 19	< 21	< 21	< 18	< 20	< 20	< 20	< 19	< 21	< 21
2,4-DIMETHYLPHENOL	1,200,000	6,400	ug/kg	< 89	< 20	< 21	< 19	< 21	< 21	< 18	< 20	< 20	< 20	< 19	< 21	< 21
2,4-DINITROPHENOL	120,000	680	ug/kg	< 1800	< 410	< 420	< 370	< 410	< 420	< 360	< 400	< 410	< 410	< 390	< 410	< 420
2,4-DINITROTOLUENE	5,500	5.6	ug/kg	< 360	< 81	< 83	< 75	< 82	< 84	< 71	< 79	< 81	< 82	< 77	< 83	< 83

TABLE 5-8
SWMU 25-28 Soil Data
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Analyte	Industrial RSL[1]	Protection of Groundwater SSLs[2]	Location	S25-SS01			S25-SS02			S25-SS03				S25-SS04		
			Sample ID	S25-SS01-0002-120711	S25-SS01-0305-120711	S25-SS01-0810-120711	S25-SS02-0002-120711	S25-SS02-0305-120711	S25-SS02-0810-120711	S25-SS03-0002-120711	S25-SS03-0305-120711	HGR-120711-FD02	S25-SS03-0810-120711	S25-SS04-0002-120711	S25-SS04-0305-120711	S25-SS04-0810-120711
			Sample Depth (ft)	0 - 2	3 - 5	8 - 10	0 - 2	3 - 5	8 - 10	0 - 2	3 - 5	8 - 10	8 - 10	0 - 2	3 - 5	8 - 10
			Sample Date	12/7/2011	12/7/2011	12/7/2011	12/7/2011	12/7/2011	12/7/2011	12/7/2011	12/7/2011	12/7/2011	12/7/2011	12/7/2011	12/7/2011	12/7/2011
			UNITS													
2,6-DINITROTOLUENE	62,000	400	ug/kg	< 89	< 20	< 21	< 19	< 21	< 21	< 18	< 20	< 20	< 20	< 19	< 21	< 21
2-CHLORONAPHTHALENE	175,000	58,000	ug/kg	< 37	< 9	< 9	< 8	< 9	< 9	< 7	< 8	< 9	< 9	< 8	< 9	< 9
2-CHLOROPHENOL	510,000	1,140	ug/kg	< 89	< 20	< 21	< 19	< 21	< 21	< 18	< 20	< 20	< 20	< 19	< 21	< 21
2-METHYLNAPHTHALENE	368,000	2,800	ug/kg	**34 J**	< 4	< 4	**20**	< 4	< 4	**440**	**6 J**	**13 J**	**6 J**	**17 J**	**45**	< 4
2-METHYLPHENOL	3,100,000	11,600	ug/kg	< 89	< 20	< 21	< 19	< 21	< 21	< 18	< 20	< 20	< 20	< 19	< 21	< 21
2-NITROANILINE	600,000	1,240	ug/kg	< 89	< 20	< 21	< 19	< 21	< 21	< 18	< 20	< 20	< 20	< 19	< 21	< 21
2-NITROPHENOL	510,000	1,140	ug/kg	< 89	< 20	< 21	< 19	< 21	< 21	< 18	< 20	< 20	< 20	< 19	< 21	< 21
3,3'-DICHLOROBENZIDINE	3,800	14.2	ug/kg	< 530	< 120	< 130	< 110	< 120	< 130	< 110	< 120	< 120	< 120	< 120	< 120	< 120
3-NITROANILINE	600,000	1,240	ug/kg	< 360	< 81	< 83	< 75	< 82	< 84	< 71	< 79	< 81	< 82	< 77	< 83	< 83
4,6-DINITRO-2-METHYLPHENOL	4,900	40	ug/kg	< 890	< 200	< 210	< 190	< 210	< 210	< 180	< 200	< 200	< 200	< 190	< 210	< 210
4-BROMOPHENYL-PHENYLETHER	- -	NA	- -	< 89	< 20	< 21	< 19	< 21	< 21	< 18	< 20	< 20	< 20	< 19	< 21	< 21
4-CHLORO-3-METHYLPHENOL	6,200,000	26,000	ug/kg	< 89	< 20	< 21	< 19	< 21	< 21	< 18	< 20	< 20	< 20	< 19	< 21	< 21
4-CHLOROANILINE	8,600	2.6	ug/kg	< 89	< 20	< 21	< 19	< 21	< 21	< 18	< 20	< 20	< 20	< 19	< 21	< 21
4-CHLOROPHENYL-PHENYLETHER	- -	NA	- -	< 89	< 20	< 21	< 19	< 21	< 21	< 18	< 20	< 20	< 20	< 19	< 21	< 21
4-METHYLPHENOL	310,000	1,140	ug/kg	< 89	< 20	< 21	< 19	< 21	< 21	< 18	< 20	< 20	< 20	< 19	**29 J**	< 21
4-NITROANILINE	86,000	28	ug/kg	< 360	< 81	< 83	< 75	< 82	< 84	< 71	< 79	< 81	< 82	< 77	< 83	< 83
4-NITROPHENOL	24,000	1.58	ug/kg	< 890	< 200	< 210	< 190	< 210	< 210	< 180	< 200	< 200	< 200	< 190	< 210	< 210
ACENAPHTHENE	3,300,000	82,000	ug/kg	< 18	< 4	< 4	< 4	< 4	< 4	< 4	**6 J**	< 4	< 4	< 4	**39**	< 4
ACENAPHTHYLENE	3,300,000	82,000	ug/kg	< 18	< 4	< 4	**5 J**	< 4	< 4	< 4	**7 J**	< 4	< 4	< 4	**120**	< 4
ANTHRACENE	17,000,000	840,000	ug/kg	< 18	< 4	< 4	**8 J**	< 4	< 4	**14 J**	**7 J**	< 4	< 4	**7 J**	**170**	< 4
BENZO(A)ANTHRACENE	2,100	200	ug/kg	< 18	< 4	< 4	**18 J**	< 4	< 4	**24**	**18 J**	< 4	< 4	**10 J**	**700**	< 4
BENZO(A)PYRENE	210	4,800	ug/kg	< 18	< 4	< 4	**23**	< 4	< 4	**26**	**22**	< 4	< 4	**14 J**	**720**	< 4
BENZO(B)FLUORANTHENE	2,100	700	ug/kg	< 18	< 4	< 4	**34**	< 4	< 4	**38**	**33**	< 4	**9 J**	**26**	**880**	< 4
BENZO(G,H,I)PERYLENE	1,700,000	190,000	ug/kg	< 18	< 4	< 4	**25**	< 4	< 4	**32**	**20**	< 4	< 4	**19 J**	**530**	< 4
BENZO(K)FLUORANTHENE	21,000	7,000	ug/kg	< 18	< 4	< 4	**13 J**	< 4	< 4	**14 J**	**13 J**	< 4	< 4	**10 J**	**390**	< 4
BENZYL ALCOHOL	6,200,000	7,400	ug/kg	< 890	< 200	< 210	< 190	< 210	< 210	< 180	< 200	< 200	< 200	< 190	< 210	< 210
BIS(2-CHLOROETHOXY)METHANE	180,000	220	ug/kg	< 89	< 20	< 21	< 19	< 21	< 21	< 18	< 20	< 20	< 20	< 19	< 21	< 21
BIS(2-CHLOROETHYL)ETHER	1,000	0.062	ug/kg	< 89	< 20	< 21	< 19	< 21	< 21	< 18	< 20	< 20	< 20	< 19	< 21	< 21
BIS(2-ETHYLHEXYL)PHTHALATE	120,000	28,000	ug/kg	< 360	< 81	< 83	< 75	< 82	< 84	**76 J**	< 79	**420**	**150 J**	**180 J**	< 83	< 83
BUTYLBENZYLPHTHALATE	910,000	4,000	ug/kg	< 360	< 81	< 83	< 75	< 82	< 84	< 71	< 79	< 81	< 82	< 77	< 83	< 83
CARBAZOLE	- -	NA	- -	< 89	< 20	< 21	< 19	< 21	< 21	< 18	< 20	< 20	< 20	< 19	**27 J**	< 21
CHRYSENE	210,000	22,000	ug/kg	< 18	< 4	< 4	**27**	< 4	< 4	**54**	**27**	**10 J**	< 4	**19 J**	**640**	< 4
DI-N-BUTYLPHTHALATE	6,200,000	34,000	ug/kg	< 360	< 81	< 83	< 75	< 82	< 84	< 71	< 79	< 81	< 82	< 77	< 83	< 83
DI-N-OCTYLPHTHALATE	- -	NA	- -	< 360	< 81	< 83	< 75	< 82	< 84	< 71	< 79	< 81	< 82	< 77	< 83	< 83
DIBENZ(A,H)ANTHRACENE	210	220	ug/kg	< 18	< 4	< 4	< 4	< 4	< 4	**7 J**	**5 J**	< 4	< 4	< 4	**100**	< 4
DIBENZOFURAN	100,000	2,200	ug/kg	< 89	< 20	< 21	< 19	< 21	< 21	**71**	< 20	**290 J**	**130 J**	< 19	**36 J**	< 21
DIETHYLPHTHALATE	49,000,000	94,000	ug/kg	< 360	< 81	< 83	< 75	< 82	< 84	< 71	< 79	< 81	< 82	< 77	< 83	< 83
DIMETHYLPHTHALATE	- -	NA	- -	< 360	< 81	< 83	< 75	< 82	< 84	< 71	< 79	< 81	< 82	< 77	< 83	< 83
FLUORANTHENE	2,200,000	1,400,000	ug/kg	< 18	< 4	< 4	**30**	< 4	< 4	**39**	**47**	< 4	< 4	**22**	**1500**	< 4
FLUORENE	2,200,000	80,000	ug/kg	< 18	< 4	< 4	< 4	< 4	< 4	**24**	< 4	< 4	< 4	< 4	**50**	< 4
HEXACHLOROBENZENE	1,100	260	ug/kg	< 18	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4
HEXACHLOROCYCLOPENTADIENE	370,000	3,200	ug/kg	< 890	< 200	< 210	< 190	< 210	< 210	< 180	< 200	< 200	< 200	< 190	< 210	< 210
HEXACHLOROETHANE	43,000	9.6	ug/kg	< 180	< 41	< 42	< 37	< 41	< 42	< 36	< 40	< 41	< 41	< 39	< 41	< 42
INDENO(1,2,3-CD)PYRENE	2,100	2,400	ug/kg	< 18	< 4	< 4	**18 J**	< 4	< 4	**19**	**16 J**	< 4	< 4	**15 J**	**470**	< 4
ISOPHORONE	1,800,000	440	ug/kg	< 89	< 20	< 21	< 19	< 21	< 21	< 18	< 20	< 20	< 20	< 19	< 21	< 21
N-NITROSO-DI-N-PROPYLAMINE	250	0.14	ug/kg	< 89	< 20	< 21	< 19	< 21	< 21	< 18	< 20	< 20	< 20	< 19	< 21	< 21
N-NITROSODIPHENYLAMINE	350,000	1,140	ug/kg	< 89	< 20	< 21	< 19	< 21	< 21	< 18	< 20	< 20	< 20	< 19	< 21	< 21
NITROBENZENE	24,000	1.58	ug/kg	< 89	< 20	< 21	< 19	< 21	< 21	< 18	< 20	< 20	< 20	< 19	< 21	< 21
PENTACHLOROPHENOL	2,700	200	ug/kg	< 180	< 41	< 42	< 37	< 41	< 42	< 36	< 40	< 41	< 41	< 39	< 41	< 42
PHENANTHRENE	17,000,000	840,000	ug/kg	**33 J**	< 4	< 4	**24**	< 4	< 4	**220**	**33**	**28**	**14 J**	**26**	**570**	< 4
PHENOL	18,000,000	52,000	ug/kg	< 89	< 20	< 21	< 19	< 21	< 21	< 18	< 20	< 20	< 20	< 19	< 21	< 21
PYRENE	1,700,000	190,000	ug/kg	**23 J**	< 4	< 4	**29**	< 4	< 4	**47**	**40**	< 4	< 4	**23**	**1300**	< 4
METAL (MG/KG)																
ARSENIC	1.6	5.8	mg/kg	**11**	**16 J**	**14.7**	**9.97**	**18.8**	**18.7**	**12.2**	**13.2**	**20.7**	**13.5**	**42.9**	**15.3**	**13.1**
BARIUM	19,000	1,640	mg/kg	**53.5**	**183**	**126**	**47.9**	**180**	**94.6**	**71.6**	**138**	**71.3**	**80.6**	**92.2**	**185**	**87.7**
CADMIUM	80	7.6	mg/kg	**0.867**	**1.51**	**1.45**	**0.862**	**1.42**	**1.38**	**1.14**	**1.22**	**1.28**	**1.32**	**1.3**	**1.24**	**1.24**
CHROMIUM	150,000	560,000,000	mg/kg	**10.7**	**21.2 J**	**18.8**	**10.1**	**24.1**	**20.3**	**11.1**	**21.7**	**20.1**	**18.5**	**43.3**	**20.6**	**20.8**
LEAD	80	280	mg/kg	**10.3**	**10.1**	**8.08**	**7.04**	**18.9**	**16.6**	**15.7**	**28.9**	**15 J**	**7.57 J**	**19.5**	**49.3**	**16.2**
MERCURY	3.13	2	mg/kg	**0.0206 J**	**0.0311 J**	**0.0336 J**	**0.018 J**	**0.0264 J**	**0.0304 J**	**0.0169 J**	**0.0379 J**	**0.0383 J**	**0.0245 J**	**0.0508 J**	**0.253**	**0.0242 J**
SELENIUM	510	5.2	mg/kg	< 1.82	< 1.19	< 0.887	< 0.757	**2.86**	**2.85**	**1.46 J**	**3.3**	**3.39 J**	< 0.893	**1.13 J**	**1.5 J**	**2.5**
SILVER	510	12	mg/kg	< 0.0888	< 0.1	< 0.104	< 0.0924	< 0.1	< 0.101	< 0.0876	< 0.0987	< 0.1	< 0.0998	< 0.0936	< 0.102	< 0.101
GENERAL CHEM (percent)																
MOISTURE	- -	- -	- -	**6.5**	**18**	**20.1**	**11.1**	**19.7**	**21**	**6.2**	**15.9**	**18**	**18.5**	**13.9**	**19.5**	**19.9**

Notes:
[1]USEPA Industrial Regional Screening Level (RSL) based on $1x10^{-6}$ or HQ = 0.1 (November 2011)
[2]USEPA Protection of Groundwater Soil Screening Level (SSL) based dilution attenuation factor of 20 (November 2011)
NA = Not analyzed
J = The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.
> = The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was below the reported sample quantitation limit. However, the reported value is approximate.
mg/kg = Milligrams per Kilogram
ug/kg = Micrograms per Kilogram
Shading indicates the result exceeded industrial soil RSL
Box indicates the result exceeded protection of groundwater SSL

TABLE 5-9
SWMU 29 Soil Data
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Analyte	Human Health Screening Level[1]	Ecological Screening Level	Protection of Groundwater SSLs[2]	Location	S29-SS01				S29-SS02		
				Sample ID	S29-SS01-0002-120811	S29-SS01-0305-120811	HGR-120811-FD01	S29-SS01-0810-120811	S29-SS02-0002-120811	S29-SS02-0305-120811	S29-SS02-0810-120811
				Sample Depth (ft)	0 - 2	3 - 5	8 - 10	8 - 10	0 - 2	3 - 5	8 - 10
				Sample Date	12/8/2011	12/8/2011	12/8/2011	12/8/2011	12/8/2011	12/8/2011	12/8/2011
				UNITS							
VOC (ug/kg)											
1,1,1,2-TETRACHLOROETHANE	9,300	130	3.8	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,1-TRICHLOROETHANE	640,000	29,800	1,400	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2,2-TETRACHLOROETHANE	2,800	130	0.52	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1,2-TRICHLOROETHANE	680	28,600	32	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1-DICHLOROETHANE	17,000	20,100	13.6	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1-DICHLOROETHENE	110,000	8,280	50	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,1-DICHLOROPROPENE	110,000	400	50	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2,3-TRICHLOROBENZENE	49,000	-	300	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2,3-TRICHLOROPROPANE	95	3,360	0.0056	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2,4-TRICHLOROBENZENE	27,000	-	4,000	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2,4-TRIMETHYLBENZENE	26,000	-	420	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2-DIBROMO-3-CHLOROPROPANE	69	-	2	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2
1,2-DIBROMOETHANE	170	-	0	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2-DICHLOROETHANE	2,200	21,200	28	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,2-DICHLOROPROPANE	4,700	32,700	34	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,3,5-TRIMETHYLBENZENE	182,000	-	2,400	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,3-DICHLOROPROPANE	1,490,000	32,700	1,980	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2,2-DICHLOROPROPANE	4,700	-	34	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2-BUTANONE	20,000,000	-	20,000	ug/kg	**12 J**	< 5	< 4	< 4	**7 J**	< 5	< 5
2-CHLOROTOLUENE	907,000	-	3,400	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2-HEXANONE	140,000	-	158	ug/kg	< 3	< 3	< 3	< 3	< 3	< 3	< 4
4-CHLOROTOLUENE	253,000	-	3,600	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1
4-METHYL-2-PENTANONE	3,360,000	-	4,600	ug/kg	< 3	< 3	< 3	< 3	< 3	< 3	< 4
ACETONE	63,000,000	2,500	48,000	ug/kg	**100 J**	**57 J**	**26 J**	**44 J**	**78 J**	**14 J**	**23 J**
BENZENE	5,400	260	52	ug/kg	**1 J**	< 0.6	< 0.6	< 0.6	< 0.5	< 0.6	< 0.6
BROMOBENZENE	180,000	-	720	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOCHLOROMETHANE	68,000	-	420	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMODICHLOROMETHANE	1,400	540	440	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOFORM	220,000	15,900	420	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1
BROMOMETHANE	3,200	-	36	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2
CARBON DISULFIDE	370,000	94	4,200	ug/kg	**4 J**	< 1	< 1	< 1	< 1	< 1	< 1
CARBON TETRACHLORIDE	3,000	2,980	38	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROBENZENE	140,000	40,000	1,360	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROETHANE	2,120,000	-	118,000	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2
CHLOROFORM	1,500	1,190	440	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CHLOROMETHANE	50,000	-	980	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2
CIS-1,2-DICHLOROETHENE	200,000	780	420	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CIS-1,3-DICHLOROPROPENE	8,300	400	3	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1
CYCLOHEXANE	117,000	-	260,000	ug/kg	**2 J**	< 1	< 1	< 1	< 1	< 1	< 1
DIBROMOCHLOROMETHANE	3,300	2,050	420	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1
DIBROMOMETHANE	11,000	-	38	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1
DICHLORODIFLUOROMETHANE	40,000	39,500	6,000	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2
ETHYLBENZENE	27,000	5,160	15,600	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1
FREON 113	910,000	-	2,600,000	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2
HEXACHLOROBUTADIENE	22,000	-	10	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2
ISOPROPYLBENZENE	268,000	-	12,800	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1
M+P-XYLENE	250,000	-	3,600	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1
METHYL ACETATE	29,000,000	-	64,000	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2
METHYL TERTIARY BUTYL ETHER	220,000	-	56	ug/kg	< 0.6	< 0.6	< 0.6	< 0.6	< 0.5	< 0.6	< 0.6
METHYLCYCLOHEXANE	--	-	NA	- -	**2 J**	< 1	< 1	< 1	< 1	< 1	< 1
METHYLENE CHLORIDE	53,000	4,050	26	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2
N-BUTYLBENZENE	108,000	-	50,000	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1
N-PROPYLBENZENE	264,000	-	19,800	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1
NAPHTHALENE	18,000	99	9.4	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1
O-XYLENE	300,000	-	3,800	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1
P-ISOPROPYLTOLUENE	268,000	-	12,800	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1
SEC-BUTYLBENZENE	268,000	-	12,800	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1
STYRENE	867,000	4,690	2,200	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TERT-BUTYLBENZENE	268,000	-	12,800	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TETRACHLOROETHENE	2,600	9,920	46	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TOLUENE	818,000	5,450	13,800	ug/kg	**1 J**	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1,2-DICHLOROETHENE	69,000	780	580	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRANS-1,3-DICHLOROPROPENE	8,300	400	3	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROETHENE	2,000	12,400	36	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	340,000	16,400	13,800	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2
VINYL ACETATE	410,000	-	1,740	ug/kg	< 2	< 2	< 2	< 2	< 2	< 2	< 2
VINYL CHLORIDE	1,700	650	13.8	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1
SVOC (ug/kg)											
1,1'-BIPHENYL	21,000	-	174	ug/kg	< 21	< 21	< 21	< 21	< 20	< 21	< 21
1,2-DICHLOROBENZENE	376,000	20,000	11,600	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,3-DICHLOROBENZENE	12,000	20,000	1,440	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,4-DICHLOROBENZENE	12,000	20,000	1,440	ug/kg	< 1	< 1	< 1	< 1	< 1	< 1	< 1
1,4-DIOXANE	17,000	-	2.8	ug/kg	< 120	< 130	< 120	< 120	< 120	< 130	< 120
2,4,5-TRICHLOROPHENOL	6,200,000	-	66,000	ug/kg	< 21	< 21	< 21	< 21	< 20	< 21	< 21
2,4,6-TRICHLOROPHENOL	62,000	-	260	ug/kg	< 21	< 21	< 21	< 21	< 20	< 21	< 21
2,4-DICHLOROPHENOL	180,000	-	820	ug/kg	< 21	< 21	< 21	< 21	< 20	< 21	< 21
2,4-DIMETHYLPHENOL	1,200,000	-	6,400	ug/kg	< 21	< 21	< 21	< 21	< 20	< 21	< 21
2,4-DINITROPHENOL	120,000	20,000	680	ug/kg	< 410	< 420	< 410	< 410	< 400	< 420	< 410
2,4-DINITROTOLUENE	5,500	-	5.6	ug/kg	< 82	< 84	< 83	< 83	< 80	< 84	< 83

TABLE 5-9
SWMU 29 Soil Data
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Analyte	Human Health Screening Level[1]	Ecological Screening Level	Protection of Groundwater SSLs[2]	Location	S29-SS01				S29-SS02		
				Sample ID	S29-SS01-0002-120811	S29-SS01-0305-120811	HGR-120811-FD01	S29-SS01-0810-120811	S29-SS02-0002-120811	S29-SS02-0305-120811	S29-SS02-0810-120811
				Sample Depth (ft)	0 - 2	3 - 5	8 - 10	8 - 10	0 - 2	3 - 5	8 - 10
				Sample Date	12/8/2011	12/8/2011	12/8/2011	12/8/2011	12/8/2011	12/8/2011	12/8/2011
				UNITS							
2,6-DINITROTOLUENE	62,000	-	400	ug/kg	< 21	< 21	< 21	< 21	< 20	< 21	< 21
2-CHLORONAPHTHALENE	175,000	-	58,000	ug/kg	< 9	< 9	< 9	< 9	< 8	< 9	< 9
2-CHLOROPHENOL	510,000	7,000	1,140	ug/kg	< 21	< 21	< 21	< 21	< 20	< 21	< 21
2-METHYLNAPHTHALENE	368,000	3,240	2,800	ug/kg	< 4	< 4	< 4	< 4	< 4	**12 J**	< 4
2-METHYLPHENOL	3,100,000	-	11,600	ug/kg	< 21	< 21	< 21	< 21	< 20	< 21	< 21
2-NITROANILINE	600,000	74,100	1,240	ug/kg	< 21	< 21	< 21	< 21	< 20	< 21	< 21
2-NITROPHENOL	510,000	1,600	1,140	ug/kg	< 21	< 21	< 21	< 21	< 20	< 21	< 21
3,3'-DICHLOROBENZIDINE	3,800	650	14.2	ug/kg	< 120	< 130	< 120	< 120	< 120	< 130	< 120
3-NITROANILINE	600,000	3,160	1,240	ug/kg	< 82	< 84	< 83	< 83	< 80	< 84	< 83
4,6-DINITRO-2-METHYLPHENOL	4,900	-	40	ug/kg	< 210	< 210	< 210	< 210	< 200	< 210	< 210
4-BROMOPHENYL-PHENYLETHER	--	-	NA	- -	< 21	< 21	< 21	< 21	< 20	< 21	< 21
4-CHLORO-3-METHYLPHENOL	6,200,000	-	26,000	ug/kg	< 21	< 21	< 21	< 21	< 20	< 21	< 21
4-CHLOROANILINE	8,600	20,000	2.6	ug/kg	< 21	< 21	< 21	< 21	< 20	< 21	< 21
4-CHLOROPHENYL-PHENYLETHER	--	-	NA	- -	< 21	< 21	< 21	< 21	< 20	< 21	< 21
4-METHYLPHENOL	310,000	-	1,140	ug/kg	< 21	< 21	< 21	< 21	< 20	< 21	< 21
4-NITROANILINE	86,000	21,900	28	ug/kg	< 82	< 84	< 83	< 83	< 80	< 84	< 83
4-NITROPHENOL	24,000	7,000	1.58	ug/kg	< 210	< 210	< 210	< 210	< 200	< 210	< 210
ACENAPHTHENE	3,300,000	20,000	82,000	ug/kg	< 4	< 4	< 4	< 4	< 4	< 4	< 4
ACENAPHTHYLENE	3,300,000	682,000	82,000	ug/kg	< 4	**5 J**	< 4	< 4	< 4	**16 J**	< 4
ANTHRACENE	17,000,000	1,480,000	840,000	ug/kg	< 4	**7 J**	< 4	< 4	< 4	**10 J**	< 4
BENZO(A)ANTHRACENE	2,100	5,210	200	ug/kg	**13 J**	**16 J**	< 4	< 4	**5 J**	**33**	< 4
BENZO(A)PYRENE	210	1,520	4,800	ug/kg	**20 J**	**20 J**	< 4	< 4	**7 J**	**52**	< 4
BENZO(B)FLUORANTHENE	2,100	59,800	700	ug/kg	**25**	**33**	< 4	< 4	**10 J**	**79**	< 4
BENZO(G,H,I)PERYLENE	1,700,000	119,000	190,000	ug/kg	**21**	**24**	< 4	< 4	**7 J**	**67**	< 4
BENZO(K)FLUORANTHENE	21,000	148,000	7,000	ug/kg	**12 J**	**15 J**	< 4	< 4	**5 J**	**33**	< 4
BENZYL ALCOHOL	6,200,000	-	7,400	ug/kg	< 210	< 210	< 210	< 210	< 200	< 210	< 210
BIS(2-CHLOROETHOXY)METHANE	180,000	300	220	ug/kg	< 21	< 21	< 21	< 21	< 20	< 21	< 21
BIS(2-CHLOROETHYL)ETHER	1,000	23,700	0.062	ug/kg	< 21	< 21	< 21	< 21	< 20	< 21	< 21
BIS(2-ETHYLHEXYL)PHTHALATE	120,000	930	28,000	ug/kg	< 82	< 84	< 83	< 83	< 80	< 84	< 83
BUTYLBENZYLPHTHALATE	910,000	-	4,000	ug/kg	< 82	< 84	< 83	< 83	< 80	< 84	< 83
CARBAZOLE	--	-	NA	- -	< 21	< 21	< 21	< 21	< 20	< 21	< 21
CHRYSENE	210,000	4,730	22,000	ug/kg	**17 J**	**23**	< 4	< 4	**6 J**	**54**	< 4
DI-N-BUTYLPHTHALATE	6,200,000	150	34,000	ug/kg	< 82	< 84	< 83	< 83	< 80	< 84	< 83
DI-N-OCTYLPHTHALATE	--	-	NA	- -	< 82	< 84	< 83	< 83	< 80	< 84	< 83
DIBENZ(A,H)ANTHRACENE	210	18,400	220	ug/kg	< 4	**6 J**	< 4	< 4	< 4	**17 J**	< 4
DIBENZOFURAN	100,000	-	2,200	ug/kg	< 21	< 21	< 21	< 21	< 20	< 21	< 21
DIETHYLPHTHALATE	49,000,000	100,000	94,000	ug/kg	< 82	< 84	< 83	< 83	< 80	< 84	< 83
DIMETHYLPHTHALATE	--	734,000	NA	- -	< 82	< 84	< 83	< 83	< 80	< 84	< 83
FLUORANTHENE	2,200,000	122,000	1,400,000	ug/kg	**23**	**37**	< 4	< 4	**10 J**	**84**	< 4
FLUORENE	2,200,000	30,000	80,000	ug/kg	< 4	< 4	< 4	< 4	< 4	< 4	< 4
HEXACHLOROBENZENE	1,100	-	260	ug/kg	< 4	< 4	< 4	< 4	< 4	< 4	< 4
HEXACHLOROCYCLOPENTADIENE	370,000	-	3,200	ug/kg	< 210	< 210	< 210	< 210	< 200	< 210	< 210
HEXACHLOROETHANE	43,000	-	9.6	ug/kg	< 41	< 42	< 41	< 41	< 40	< 42	< 41
INDENO(1,2,3-CD)PYRENE	2,100	109,000	2,400	ug/kg	**14 J**	**18 J**	< 4	< 4	**5 J**	**49**	< 4
ISOPHORONE	1,800,000	-	440	ug/kg	< 21	< 21	< 21	< 21	< 20	< 21	< 21
N-NITROSO-DI-N-PROPYLAMINE	250	-	0.14	ug/kg	< 21	< 21	< 21	< 21	< 20	< 21	< 21
N-NITROSODIPHENYLAMINE	350,000	550	1,140	ug/kg	< 21	< 21	< 21	< 21	< 20	< 21	< 21
NITROBENZENE	24,000	-	1.58	ug/kg	< 21	< 21	< 21	< 21	< 20	< 21	< 21
PENTACHLOROPHENOL	2,700	3,000	200	ug/kg	< 41	< 42	< 41	< 41	< 40	< 42	< 41
PHENANTHRENE	17,000,000	45,700	840,000	ug/kg	**12 J**	**24**	< 4	< 4	**5 J**	**55**	< 4
PHENOL	18,000,000	30,000	52,000	ug/kg	**27 J**	< 21	< 21	< 21	< 20	< 21	< 21
PYRENE	1,700,000	45,700	190,000	ug/kg	**23**	**33**	< 4	< 4	**10 J**	**72**	< 4
METAL (MG/KG)											
ARSENIC	1.6	18	5.8	mg/kg	**15.1**	**20**	**14.7**	**14.4**	**6.83**	**13.7**	**13.6**
BARIUM	19,000	330	1,640	mg/kg	**104**	**91.7**	**96**	**73.7**	**86.6**	**215**	**74.8**
CADMIUM	80	32	7.6	mg/kg	**1.47**	**1.45**	**1.32**	**1.4**	**1.09**	**1.98**	**1.33**
CHROMIUM	150,000	0.4	560,000,000	mg/kg	**23.1**	**23.9**	**20.2**	**22.2**	**21.6**	**21.5**	**20.8**
LEAD	80	120	280	mg/kg	**23.8**	**17.5**	**15.9**	**13.7**	**16.2**	**62.7**	**16.3**
MERCURY	3.13	0.1	2	mg/kg	**0.0293 J**	**0.0304 J**	**0.0195 J**	**0.0229 J**	**0.0174 J**	**0.0391 J**	**0.0249 J**
SELENIUM	510	0.52	5.2	mg/kg	**3.58**	**3.35**	**2.57**	**3.56**	**2.4**	**3.13**	**3.22**
SILVER	510	560	12	mg/kg	< 0.1	< 0.103	< 0.101	< 0.0993	< 0.0963	< 0.1	< 0.102
GENERAL CHEM (percent)											
MOISTURE	--	--	--	- -	**19**	**20.5**	**19.3**	**19.6**	**16.3**	**20.4**	**19.5**

Notes:
[1]Screening level is based on the minimum between the USEPA Industrial Regional Screening Level (RSL) based on 1x10-6 or HQ = 0.1 (November 2011) and USEPA Ecological Soil Screening Levels
[2]USEPA Protection of Groundwater Soil Screening Level (SSL) based dilution attenuation factor of 20 (November 2011)
NA = Not analyzed
J = The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.
U = The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
mg/kg = Milligrams per Kilogram
ug/kg = Micrograms per Kilogram
Bold indicates the analyte was detected
Shading indicates the result exceeded the lowest of industrial soil RSL or ecological RSLs
Box indicates the result exceeded protection of groundwater SSL

TABLE 5-10
AOC D Soil Data
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Analyte	Human Health Screening Level[1]	Protection of Groundwater SSLs[2]	Location	AOD-SS01				AOD-SS02			
			Sample ID	AOD-SS01-0002-121411	AOD-SS01-0305-121411	AOD-SS01-0810-121411	AOD-SS01-2123-121411	AOD-SS02-0002-121411	AOD-SS02-0305-121411	AOD-SS02-0810-121411	AOD-SS02-1315-121411
			Sample Depth (ft)	0 - 2	3 - 5	8 - 10	21 - 23	0 - 2	3 - 5	8 - 10	13 - 15
			Sample Date	12/14/2011	12/14/2011	12/14/2011	12/14/2011	12/14/2011	12/14/2011	12/14/2011	12/14/2011
			UNITS								
VOC (ug/kg)											
1,1,1,2-TETRACHLOROETHANE	9,300	3.8	ug/kg	< 1	< 1	< 1	< 1	< 49	< 1	< 1	< 1
1,1,1-TRICHLOROETHANE	640,000	1,400	ug/kg	< 1	< 1	< 1	< 1	< 49	< 1	< 1	< 1
1,1,2,2-TETRACHLOROETHANE	2,800	0.52	ug/kg	< 1	< 1	< 1	< 1	< 49	< 1	< 1	< 1
1,1,2-TRICHLOROETHANE	680	32	ug/kg	< 1	< 1	< 1	< 1	< 49	< 1	< 1	< 1
1,1-DICHLOROETHANE	17,000	13.6	ug/kg	< 1	< 1	< 1	< 1	< 49	< 1	< 1	< 1
1,1-DICHLOROETHENE	110,000	50	ug/kg	< 1	< 1	< 1	< 1	< 49	< 1	< 1	< 1
1,1-DICHLOROPROPENE	110,000	50	ug/kg	< 1	< 1	< 1	< 1	< 49	< 1	< 1	< 1
1,2,3-TRICHLOROBENZENE	49,000	300	ug/kg	< 1	< 1	< 1	< 1	< 49	< 1	< 1	< 1
1,2,3-TRICHLOROPROPANE	95	0.0056	ug/kg	< 1	< 1	< 1	< 1	< 49	< 1	< 1	< 1
1,2,4-TRICHLOROBENZENE	27,000	4,000	ug/kg	< 1	< 1	< 1	< 1	< 49	< 1	< 1	< 1
1,2,4-TRIMETHYLBENZENE	26,000	420	- -	**1 J**	< 1	< 1	< 1	< 49	< 1	< 1	< 1
1,2-DIBROMO-3-CHLOROPROPANE	69	1.72	ug/kg	< 2	< 2	< 2	< 2	< 98	< 2	< 2	< 2
1,2-DIBROMOETHANE	170	0.28	- -	< 1	< 1	< 1	< 1	< 49	< 1	< 1	< 1
1,2-DICHLOROETHANE	2,200	28	ug/kg	< 1	< 1	< 1	< 1	< 49	< 1	< 1	< 1
1,2-DICHLOROPROPANE	4,700	34	ug/kg	< 1	< 1	< 1	< 1	< 49	< 1	< 1	< 1
1,3,5-TRIMETHYLBENZENE	182,000	2,400	- -	< 1	< 1	< 1	< 1	< 49	< 1	< 1	< 1
1,3-DICHLOROPROPANE	1,490,000	1,980	ug/kg	< 1	< 1	< 1	< 1	< 49	< 1	< 1	< 1
2,2-DICHLOROPROPANE	4,700	34	ug/kg	< 1	< 1	< 1	< 1	< 49	< 1	< 1	< 1
2-BUTANONE	20,000,000	20,000	ug/kg	< 4	< 4	< 4	< 4	< 200	< 4	< 4	< 4
2-CHLOROTOLUENE	907,000	3,400	- -	< 1	< 1	< 1	< 1	< 49	< 1	< 1	< 1
2-HEXANONE	140,000	158	- -	< 3	< 3	< 3	< 3	< 150	< 3	< 3	< 3
4-CHLOROTOLUENE	253,000	3,600	- -	< 1	< 1	< 1	< 1	< 49	< 1	< 1	< 1
4-METHYL-2-PENTANONE	3,360,000	4,600	- -	< 3	< 3	< 3	< 3	< 150	< 3	< 3	< 3
ACETONE	63,000,000	48,000	ug/kg	**40 J**	**52 J**	**56 J**	**20 J**	< 340	**17 J**	**29 J**	**24 J**
BENZENE	5,400	52	ug/kg	**1 J**	< 0.6	< 0.5	< 0.5	**73 J**	**1 J**	< 0.5	< 0.5
BROMOBENZENE	180,000	720	- -	< 1	< 1	< 1	< 1	< 49	< 1	< 1	< 1
BROMOCHLOROMETHANE	68,000	420	- -	< 1	< 1	< 1	< 1	< 49	< 1	< 1	< 1
BROMODICHLOROMETHANE	1,400	440	ug/kg	< 1	< 1	< 1	< 1	< 49	< 1	< 1	< 1
BROMOFORM	220,000	420	ug/kg	< 1	< 1	< 1	< 1	< 49	< 1	< 1	< 1
BROMOMETHANE	3,200	36	- -	< 2	< 2	< 2	< 2	< 98	< 2	< 2	< 2
]]	370,000	4,200	ug/kg	**2 J**	< 1	< 1	**2 J**	< 49	< 1	< 1	< 1
CARBON TETRACHLORIDE	3,000	38	ug/kg	< 1	< 1	< 1	< 1	< 49	< 1	< 1	< 1
CHLOROBENZENE	140,000	1,360	ug/kg	< 1	< 1	< 1	< 1	< 49	< 1	< 1	< 1
CHLOROETHANE	2,120,000	118,000	ug/kg	< 2	< 2	< 2	< 2	< 98	< 2	< 2	< 2
CHLOROFORM	1,500	440	ug/kg	< 1	< 1	< 1	< 1	< 49	< 1	< 1	< 1
CHLOROMETHANE	50,000	980	ug/kg	< 2	< 2	< 2	< 2	< 98	< 2	< 2	< 2
CIS-1,2-DICHLOROETHENE	200,000	420	ug/kg	< 1	< 1	< 1	< 1	< 49	< 1	< 1	< 1
CIS-1,3-DICHLOROPROPENE	8,300	3	ug/kg	< 1	< 1	< 1	< 1	< 49	< 1	< 1	< 1
CYCLOHEXANE	117,000	260,000	ug/kg	**4 J**	< 1	< 1	< 1	< 49	< 1	< 1	< 1
DIBROMOCHLOROMETHANE	3,300	420	ug/kg	< 1	< 1	< 1	< 1	< 49	< 1	< 1	< 1
DIBROMOMETHANE	11,000	38	ug/kg	< 1	< 1	< 1	< 1	< 49	< 1	< 1	< 1
DICHLORODIFLUOROMETHANE	40,000	6,000	ug/kg	< 2	< 2	< 2	< 2	< 98	< 2	< 2	< 2
ETHYLBENZENE	27,000	15,600	ug/kg	**2 J**	< 1	< 1	**1 J**	**6500 J**	< 1	< 1	< 1
FREON 113	910,000	2,600,000	ug/kg	< 2	< 2	< 2	< 2	< 98	< 2	< 2	< 2
HEXACHLOROBUTADIENE	22,000	10	ug/kg	< 2	< 2	< 2	< 2	< 98	< 2	< 2	< 2
ISOPROPYLBENZENE	268,000	12,800	ug/kg	< 1	< 1	< 1	< 1	**250 J**	< 1	< 1	< 1
M+P-XYLENE	250,000	3,600	ug/kg	**2 J**	< 1	< 1	< 1	**210 J**	< 1	< 1	< 1
METHYL ACETATE	29,000,000	64,000	ug/kg	< 2	< 2	< 2	< 2	**120 J**	< 2	< 2	< 2
METHYL TERTIARY BUTYL ETHER	220,000	56	ug/kg	< 0.5	< 0.6	< 0.5	< 0.5	< 24	< 0.5	< 0.5	< 0.5
METHYLCYCLOHEXANE	--	NA	- -	**5 J**	< 1	< 1	< 1	< 49	< 1	< 1	< 1
METHYLENE CHLORIDE	53,000	26	ug/kg	< 2	< 2	< 2	< 2	< 98	< 2	< 2	< 2
N-BUTYLBENZENE	108,000	50,000	ug/kg	< 1	< 1	< 1	< 1	< 49	< 1	< 1	< 1
N-PROPYLBENZENE	264,000	19,800	ug/kg	< 1	< 1	< 1	< 1	**99 J**	< 1	< 1	< 1
NAPHTHALENE	18,000	9.4	ug/kg	< 1	< 1	< 1	< 1	< 49	< 1	< 1	< 1
O-XYLENE	300,000	3,800	ug/kg	< 1	< 1	< 1	< 1	**56 J**	< 1	< 1	< 1
P-ISOPROPYLTOLUENE	268,000	12,800	ug/kg	< 1	< 1	< 1	< 1	< 49	< 1	< 1	< 1
SEC-BUTYLBENZENE	268,000	12,800	ug/kg	< 1	< 1	< 1	< 1	< 49	< 1	< 1	< 1
STYRENE	867,000	2,200	ug/kg	< 1	< 1	< 1	< 1	< 49	< 1	< 1	< 1
TERT-BUTYLBENZENE	268,000	12,800	ug/kg	< 1	< 1	< 1	< 1	< 49	< 1	< 1	< 1
TETRACHLOROETHENE	2,600	46	ug/kg	< 1	< 1	< 1	< 1	< 49	< 1	< 1	< 1
TOLUENE	818,000	13,800	ug/kg	**3 J**	< 1	< 1	< 1	< 49	< 1	< 1	< 1
TRANS-1,2-DICHLOROETHENE	69,000	580	ug/kg	< 1	< 1	< 1	< 1	< 49	< 1	< 1	< 1
TRANS-1,3-DICHLOROPROPENE	8,300	3	ug/kg	< 1	< 1	< 1	< 1	< 49	< 1	< 1	< 1
TRICHLOROETHENE	2,000	36	ug/kg	< 1	< 1	< 1	< 1	< 49	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	340,000	13,800	ug/kg	< 2	< 2	< 2	< 2	< 98	< 2	< 2	< 2
VINYL ACETATE	410,000	1,740	- -	< 2	< 2	< 2	< 2	< 98	< 2	< 2	< 2
VINYL CHLORIDE	1,700	13.8	ug/kg	< 1	< 1	< 1	< 1	< 49	< 1	< 1	< 1
SVOC (ug/kg)											
1,1'-BIPHENYL	21,000	174	- -	< 18	< 18	< 18	< 18	< 21	< 20	< 20	< 18
1,2-DICHLOROBENZENE	376,000	11,600	ug/kg	< 1	< 1	< 1	< 1	< 49	< 1	< 1	< 1
1,3-DICHLOROBENZENE	12,000	1,440	ug/kg	< 1	< 1	< 1	< 1	< 49	< 1	< 1	< 1
1,4-DICHLOROBENZENE	12,000	1,440	ug/kg	< 1	< 1	< 1	< 1	< 49	< 1	< 1	< 1
1,4-DIOXANE	17,000	2.8	- -	< 110	< 110	< 110	< 110	< 120	< 120	< 120	< 110
2,4,5-TRICHLOROPHENOL	6,200,000	66,000	ug/kg	< 18	< 18	< 18	< 18	< 21	< 20	< 20	< 18
2,4,6-TRICHLOROPHENOL	62,000	260	ug/kg	< 18	< 18	< 18	< 18	< 21	< 20	< 20	< 18
2,4-DICHLOROPHENOL	180,000	820	ug/kg	< 18	< 18	< 18	< 18	< 21	< 20	< 20	< 18
2,4-DIMETHYLPHENOL	1,200,000	6,400	ug/kg	< 18	< 18	< 18	< 18	< 21	< 20	< 20	< 18
2,4-DINITROPHENOL	120,000	680	ug/kg	< 350	< 350	< 360	< 350	< 410	< 400	< 400	< 350
2,4-DINITROTOLUENE	5,500	5.6	- -	< 70	< 71	< 71	< 70	< 82	< 81	< 79	< 70

TABLE 5-10
AOC D Soil Data
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Analyte	Human Health Screening Level[1]	Protection of Groundwater SSLs[2]	Location	AOD-SS01				AOD-SS02			
			Sample ID	AOD-SS01-0002-121411	AOD-SS01-0305-121411	AOD-SS01-0810-121411	AOD-SS01-2123-121411	AOD-SS02-0002-121411	AOD-SS02-0305-121411	AOD-SS02-0810-121411	AOD-SS02-1315-121411
			Sample Depth (ft)	0 - 2	3 - 5	8 - 10	21 - 23	0 - 2	3 - 5	8 - 10	13 - 15
			Sample Date	12/14/2011	12/14/2011	12/14/2011	12/14/2011	12/14/2011	12/14/2011	12/14/2011	12/14/2011
			UNITS								
2,6-DINITROTOLUENE	62,000	400	- -	< 18	< 18	< 18	< 18	< 21	< 20	< 20	< 18
2-CHLORONAPHTHALENE	175,000	58,000	- -	< 7	< 7	< 7	< 7	< 9	< 8	< 8	< 7
2-CHLOROPHENOL	510,000	1,140	ug/kg	< 18	< 18	< 18	< 18	< 21	< 20	< 20	< 18
2-METHYLNAPHTHALENE	368,000	2,800	ug/kg	**19**	**20**	**12 J**	**8 J**	**8 J**	< 4	< 4	< 4
2-METHYLPHENOL	3,100,000	11,600	- -	< 18	< 18	< 18	< 18	< 21	< 20	< 20	< 18
2-NITROANILINE	600,000	1,240	ug/kg	< 18	< 18	< 18	< 18	< 21	< 20	< 20	< 18
2-NITROPHENOL	510,000	1,140	ug/kg	< 18	< 18	< 18	< 18	< 21	< 20	< 20	< 18
3,3'-DICHLOROBENZIDINE	3,800	14.2	ug/kg	< 110	< 110	< 110	< 110	< 120	< 120	< 120	< 110
3-NITROANILINE	600,000	1,240	ug/kg	< 70	< 71	< 71	< 70	< 82	< 81	< 79	< 70
4,6-DINITRO-2-METHYLPHENOL	4,900	40	- -	< 180	< 180	< 180	< 180	< 210	< 200	< 200	< 180
4-BROMOPHENYL-PHENYLETHER	--	NA	- -	< 18	< 18	< 18	< 18	< 21	< 20	< 20	< 18
4-CHLORO-3-METHYLPHENOL	6,200,000	26,000	- -	< 18	< 18	< 18	< 18	< 21	< 20	< 20	< 18
4-CHLOROANILINE	8,600	2.6	ug/kg	< 18	< 18	< 18	< 18	< 21	< 20	< 20	< 18
4-CHLOROPHENYL-PHENYLETHER	--	NA	- -	< 18	< 18	< 18	< 18	< 21	< 20	< 20	< 18
4-METHYLPHENOL	310,000	1,140	- -	< 18	< 18	< 18	< 18	< 21	< 20	< 20	< 18
4-NITROANILINE	86,000	28	ug/kg	< 70	< 71	< 71	< 70	< 82	< 81	< 79	< 70
4-NITROPHENOL	24,000	1.58	ug/kg	< 180	< 180	< 180	< 180	< 210	< 200	< 200	< 180
ACENAPHTHENE	3,300,000	82,000	ug/kg	< 4	< 4	< 4	< 4	**5 J**	< 4	< 4	< 4
ACENAPHTHYLENE	3,300,000	82,000	ug/kg	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4
ANTHRACENE	17,000,000	840,000	ug/kg	< 4	< 4	< 4	< 4	**9 J**	< 4	< 4	< 4
BENZO(A)ANTHRACENE	2,100	200	ug/kg	< 4	< 4	< 4	< 4	**12 J**	< 4	< 4	< 4
BENZO(A)PYRENE	210	4,800	ug/kg	< 4	< 4	< 4	< 4	**15 J**	< 4	< 4	< 4
BENZO(B)FLUORANTHENE	2,100	700	ug/kg	< 4	< 4	**4 J**	**6 J**	**19 J**	< 4	< 4	< 4
BENZO(G,H,I)PERYLENE	1,700,000	190,000	ug/kg	< 4	< 4	< 4	< 4	**11 J**	< 4	< 4	< 4
BENZO(K)FLUORANTHENE	21,000	7,000	ug/kg	< 4	< 4	< 4	< 4	**10 J**	< 4	< 4	< 4
BENZYL ALCOHOL	6,200,000	7,400	- -	< 180	< 180	< 180	< 180	< 210	< 200	< 200	< 180
BIS(2-CHLOROETHOXY)METHANE	180,000	220	ug/kg	< 18	< 18	< 18	< 18	< 21	< 20	< 20	< 18
BIS(2-CHLOROETHYL)ETHER	1,000	0.062	ug/kg	< 18	< 18	< 18	< 18	< 21	< 20	< 20	< 18
BIS(2-ETHYLHEXYL)PHTHALATE	120,000	28,000	ug/kg	< 70	< 71	< 71	< 70	< 82	< 81	< 79	< 70
BUTYLBENZYLPHTHALATE	910,000	4,000	- -	< 70	< 71	< 71	< 70	< 82	< 81	< 79	< 70
CARBAZOLE	--	NA	- -	< 18	< 18	< 18	< 18	< 21	< 20	< 20	< 18
CHRYSENE	210,000	22,000	ug/kg	**4 J**	**7 J**	**5 J**	**11 J**	**17 J**	< 4	< 4	< 4
DI-N-BUTYLPHTHALATE	6,200,000	34,000	ug/kg	< 70	< 71	< 71	< 70	< 82	< 81	< 79	< 70
DI-N-OCTYLPHTHALATE	--	NA	- -	< 70	< 71	< 71	< 70	< 82	< 81	< 79	< 70
DIBENZ(A,H)ANTHRACENE	210	220	ug/kg	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4
DIBENZOFURAN	100,000	2,200	- -	< 18	< 18	< 18	< 18	< 21	< 20	< 20	< 18
DIETHYLPHTHALATE	49,000,000	94,000	ug/kg	< 70	< 71	< 71	< 70	< 82	< 81	< 79	< 70
DIMETHYLPHTHALATE	--	NA	ug/kg	< 70	< 71	< 71	< 70	< 82	< 81	< 79	< 70
FLUORANTHENE	2,200,000	1,400,000	ug/kg	< 4	**4 J**	< 4	**4 J**	**40**	< 4	< 4	< 4
FLUORENE	2,200,000	80,000	ug/kg	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4
HEXACHLOROBENZENE	1,100	260	- -	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4
HEXACHLOROCYCLOPENTADIENE	370,000	3,200	- -	< 180	< 180	< 180	< 180	< 210	< 200	< 200	< 180
HEXACHLOROETHANE	43,000	9.6	- -	< 35	< 35	< 36	< 35	< 41	< 40	< 40	< 35
INDENO(1,2,3-CD)PYRENE	2,100	2,400	ug/kg	< 4	< 4	< 4	< 4	< 4	< 4	< 4	< 4
ISOPHORONE	1,800,000	440	- -	< 18	< 18	< 18	< 18	< 21	< 20	< 20	< 18
N-NITROSO-DI-N-PROPYLAMINE	250	0.14	- -	< 18	< 18	< 18	< 18	< 21	< 20	< 20	< 18
N-NITROSODIPHENYLAMINE	350,000	1,140	ug/kg	< 18	< 18	< 18	< 18	< 21	< 20	< 20	< 18
NITROBENZENE	24,000	1.58	- -	< 18	< 18	< 18	< 18	< 21	< 20	< 20	< 18
PENTACHLOROPHENOL	2,700	200	ug/kg	< 35	< 35	< 36	< 35	< 41	< 40	< 40	< 35
PHENANTHRENE	17,000,000	840,000	ug/kg	**16 J**	**37**	**16 J**	**44**	**46**	< 4	< 4	**9 J**
PHENOL	18,000,000	52,000	ug/kg	< 18	< 18	< 18	< 18	< 21	< 20	< 20	< 18
PYRENE	1,700,000	190,000	ug/kg	**4 J**	**5 J**	**4 J**	**5 J**	**34**	< 4	< 4	< 4
METAL (MG/KG)											
ARSENIC	1.6	5.8	mg/Kg	**7.39**	**4.61**	**5.39**	**6.35**	**8.52**	**11**	**13.9**	**8.67**
BARIUM	19,000	1,640	mg/Kg	**27.6**	**19.3**	**20.6**	**56**	**117**	**92.3**	**78.8**	**75.1**
CADMIUM	80	7.6	mg/Kg	**0.537**	**0.418 J**	**0.34 J**	**0.497 J**	**0.868**	**1.25**	**1.04**	**0.509 J**
CHROMIUM	150,000	560,000,000	mg/Kg	**5.69**	**4.87**	**3.74**	**6.17**	**14.8**	**17.3**	**16.1**	**6.3**
LEAD	80	280	mg/Kg	**3.45**	**2.52**	**2.59**	**2.85**	**11.2**	**10.4**	**9.83**	**3.92**
MERCURY	3.13	2	mg/Kg	< 0.0071	< 0.0074	< 0.0074	< 0.007	**0.015 J**	**0.0116 J**	**0.0177 J**	< 0.0069
SELENIUM	510	5.2	mg/Kg	< 0.696	< 0.693	< 0.727	< 0.703	< 0.83	< 0.813	< 0.778	< 0.704
SILVER	510	12	mg/Kg	< 0.0849	< 0.0846	< 0.0888	< 0.0858	< 0.101	**0.943**	< 0.095	< 0.0859
GENERAL CHEM (percent)											
MOISTURE	--		- -	**5.1**	**5.7**	**6.5**	**5.2**	**18.9**	**17.2**	**16**	**5.3**

Notes:
[1]USEPA Industrial Regional Screening Level (RSL) based on $1x10^{-6}$ or HQ = 0.1 (November 2011)
[2]USEPA Protection of Groundwater Soil Screening Level (SSL) based dilution attenuation factor of 20 (November 2011)
NA = Not analyzed
J = The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.
U = The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was below the reported sample quantitation limit. However, the reported value is approximate.
mg/kg = Milligrams per Kilogram
ug/kg = Micrograms per Kilogram
Bold indicates the analyte was detected
Shading indicates the result exceeded industrial soil RSL
Box indicates the result exceeded protection of groundwater SSL

TABLE 5-11
SWMU 17 Sediment Data
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Analyte	Screening Level[1]	Protection of Groundwater SSLs[2]	Location / Sample ID / Sample Depth (ft) / Sample Date / UNITS	S17-SD01 / S17-SD01 / 0 - 0 / 1/18/2012
VOC (ug/kg)				
1,1,1,2-TETRACHLOROETHANE	9,300	3.8	ug/kg	< 2
1,1,1-TRICHLOROETHANE	210	1,400	ug/kg	< 2
1,1,2,2-TETRACHLOROETHANE	850	0.52	ug/kg	< 2
1,1,2-TRICHLOROETHANE	520	32	ug/kg	< 2
1,1-DICHLOROETHANE	0.575	13.6	ug/kg	< 2
1,1-DICHLOROETHENE	19	50	ug/kg	< 2
1,1-DICHLOROPROPENE	110,000	50	ug/kg	< 2
1,2,3-TRICHLOROBENZENE	49,000	300	ug/kg	< 2
1,2,3-TRICHLOROPROPANE	95	0.0056	ug/kg	< 2
1,2,4-TRICHLOROBENZENE	5,060	4,000	ug/kg	< 2
1,2,4-TRIMETHYLBENZENE	26,000	420	ug/kg	< 2
1,2-DIBROMO-3-CHLOROPROPANE	69	1.72	ug/kg	< 3
1,2-DIBROMOETHANE	170	0.28	ug/kg	< 2
1,2-DICHLOROETHANE	260	28	ug/kg	< 2
1,2-DICHLOROPROPANE	330	34	ug/kg	< 2
1,3,5-TRIMETHYLBENZENE	182,000	2,400	ug/kg	< 2
1,3-DICHLOROPROPANE	1,490,000	1,980	ug/kg	< 2
2,2-DICHLOROPROPANE	4,700	34	ug/kg	< 2
2-BUTANONE	42	20,000	ug/kg	< 7
2-CHLOROTOLUENE	907,000	3,400	ug/kg	< 2
2-HEXANONE	140,000	158	ug/kg	< 5
4-CHLOROTOLUENE	253,000	3,600	ug/kg	< 2
4-METHYL-2-PENTANONE	25	4,600	ug/kg	< 5
ACETONE	9.9	48,000	ug/kg	< 12
BENZENE	140	52	ug/kg	< 0.8
BROMOBENZENE	180,000	720	ug/kg	< 2
BROMOCHLOROMETHANE	68,000	420	ug/kg	< 2
BROMODICHLOROMETHANE	1,400	440	ug/kg	< 2
BROMOFORM	490	420	ug/kg	< 2
BROMOMETHANE	3,200	36	ug/kg	< 3
CARBON DISULFIDE	24	4,200	ug/kg	< 2
CARBON TETRACHLORIDE	1450	38	ug/kg	< 2
CHLOROBENZENE	290	1,360	ug/kg	< 2
CHLOROETHANE	2,120,000	118,000	ug/kg	< 3
CHLOROFORM	120	440	ug/kg	< 2
CHLOROMETHANE	50,000	980	ug/kg	< 3
CIS-1,2-DICHLOROETHENE	200,000	420	ug/kg	< 2
CIS-1,3-DICHLOROPROPENE	330	3	ug/kg	< 2
CYCLOHEXANE	117,000	260,000	ug/kg	< 2
DIBROMOCHLOROMETHANE	3300	420	ug/kg	< 2
DIBROMOMETHANE	11,000	38	ug/kg	< 2
DICHLORODIFLUOROMETHANE	40,000	6,000	ug/kg	< 3
ETHYLBENZENE	180	15,600	ug/kg	< 2
FREON 113	910,000	2,600,000	ug/kg	< 3
HEXACHLOROBUTADIENE	27	10	ug/kg	< 3
ISOPROPYLBENZENE	268,000	12,800	ug/kg	< 2
M+P-XYLENE	250,000	3,600	ug/kg	< 2
METHYL ACETATE	29,000,000	64,000	ug/kg	< 3
METHYL TERTIARY BUTYL ETHER	220,000	56	ug/kg	< 0.8
METHYLCYCLOHEXANE	--	NA	- -	< 2
METHYLENE CHLORIDE	160	26	ug/kg	< 3
N-BUTYLBENZENE	108,000	50,000	ug/kg	< 2
N-PROPYLBENZENE	264,000	19,800	ug/kg	< 2
NAPHTHALENE	180	9.4	ug/kg	< 2
O-XYLENE	300,000	3,800	ug/kg	< 2
P-ISOPROPYLTOLUENE	268,000	12,800	ug/kg	< 2
SEC-BUTYLBENZENE	268,000	12,800	ug/kg	< 2
STYRENE	250	2,200	ug/kg	< 2
TERT-BUTYLBENZENE	268,000	12,800	ug/kg	< 2
TETRACHLOROETHENE	990	46	ug/kg	< 2
TOLUENE	1220	13,800	ug/kg	< 2
TRANS-1,2-DICHLOROETHENE	69,000	580	ug/kg	< 2
TRANS-1,3-DICHLOROPROPENE	330	3	ug/kg	< 2
TRICHLOROETHENE	110	36	ug/kg	< 2
TRICHLOROFLUOROMETHANE	340,000	13,800	ug/kg	< 3
VINYL ACETATE	410,000	1,740	ug/kg	< 3
VINYL CHLORIDE	200	13.8	ug/kg	< 2
SVOC (ug/kg)				

TABLE 5-11
SWMU 17 Sediment Data
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Analyte	Screening Level[1]	Protection of Groundwater SSLs[2]	Location / Sample ID / Sample Depth (ft) / Sample Date / UNITS	S17-SD01 / S17-SD01 / 0 - 0 / 1/18/2012
1,1'-BIPHENYL	21,000	174	ug/kg	**51 J**
1,2-DICHLOROBENZENE	290	11,600	ug/kg	< 2
1,3-DICHLOROBENZENE	1,320	1,440	ug/kg	< 2
1,4-DICHLOROBENZENE	320	1,440	ug/kg	< 2
1,4-DIOXANE	17,000	2.8	ug/kg	< 160
2,4,5-TRICHLOROPHENOL	210	66,000	ug/kg	< 27
2,4,6-TRICHLOROPHENOL	210	260	ug/kg	< 27
2,4-DICHLOROPHENOL	82	820	ug/kg	< 27
2,4-DIMETHYLPHENOL	300	6,400	ug/kg	< 27
2,4-DINITROPHENOL	6.2	680	ug/kg	< 480
2,4-DINITROTOLUENE	5,500	5.6	ug/kg	< 110
2,6-DINITROTOLUENE	62,000	400	ug/kg	< 27
2-CHLORONAPHTHALENE	420	58,000	ug/kg	< 11
2-CHLOROPHENOL	32	1,140	ug/kg	< 27
2-METHYLNAPHTHALENE	20	2,800	ug/kg	**13 J**
2-METHYLPHENOL	3,100,000	11,600	ug/kg	< 27
2-NITROANILINE	600,000	1,240	ug/kg	< 27
2-NITROPHENOL	13	1,140	ug/kg	< 27
3,3'-DICHLOROBENZIDINE	130	14.2	ug/kg	< 160
3-NITROANILINE	600,000	1,240	ug/kg	< 110
4,6-DINITRO-2-METHYLPHENOL	4,900	40	ug/kg	< 270
4-BROMOPHENYL-PHENYLETHER	--	NA	- -	< 27
4-CHLORO-3-METHYLPHENOL	6,200,000	26,000	ug/kg	< 27
4-CHLOROANILINE	150	2.6	ug/kg	< 27
4-CHLOROPHENYL-PHENYLETHER	--	NA	- -	< 27
4-METHYLPHENOL	310,000	1,140	ug/kg	< 27
4-NITROANILINE	86,000	28	ug/kg	< 110
4-NITROPHENOL	13	1.58	ug/kg	< 270
ACENAPHTHENE	6.1	82,000	ug/kg	< 5
ACENAPHTHYLENE	5.9	82,000	ug/kg	**14 J**
ANTHRACENE	57.2	840,000	ug/kg	**22 J**
BENZO(A)ANTHRACENE	108	200	ug/kg	**43**
BENZO(A)PYRENE	150	4,800	ug/kg	**47**
BENZO(B)FLUORANTHENE	2100	700	ug/kg	**65**
BENZO(G,H,I)PERYLENE	170	190,000	ug/kg	**38**
BENZO(K)FLUORANTHENE	240	7,000	ug/kg	**25 J**
BENZYL ALCOHOL	6,200,000	7,400	ug/kg	< 270
BIS(2-CHLOROETHOXY)METHANE	180,000	220	ug/kg	< 27
BIS(2-CHLOROETHYL)ETHER	1,000	0.062	ug/kg	< 27
BIS(2-CHLOROISOPROPYL)ETHER	--	--	- -	< 27
BIS(2-ETHYLHEXYL)PHTHALATE	182	28,000	ug/kg	< 110
BUTYLBENZYLPHTHALATE	1,970	4,000	ug/kg	< 110
CARBAZOLE	--	NA	- -	< 27
CHRYSENE	166	22,000	ug/kg	**55**
DI-N-BUTYLPHTHALATE	1,110	34,000	ug/kg	< 110
DI-N-OCTYLPHTHALATE	40,600	NA	ug/kg	< 110
DIBENZ(A,H)ANTHRACENE	33	220	ug/kg	**13 J**
DIBENZOFURAN	450	2,200	ug/kg	< 27
DIETHYLPHTHALATE	300	94,000	ug/kg	< 110
DIMETHYLPHTHALATE	--	NA	- -	< 110
FLUORANTHENE	420	1,400,000	ug/kg	**96**
FLUORENE	77	80,000	ug/kg	**10 J**
HEXACHLOROBENZENE	20	260	ug/kg	< 5
HEXACHLOROCYCLOPENTADIENE	900	3,200	ug/kg	< 270
HEXACHLOROETHANE	580	9.6	ug/kg	< 53
INDENO(1,2,3-CD)PYRENE	200	2400	ug/kg	**32**
ISOPHORONE	1,800,000	440	ug/kg	< 27
N-NITROSO-DI-N-PROPYLAMINE	250	0.14	ug/kg	< 27
N-NITROSODIPHENYLAMINE	350,000	1140	ug/kg	< 27
NITROBENZENE	24,000	1.58	ug/kg	< 27
PENTACHLOROPHENOL	2,700	200	ug/kg	**1300**
PHENANTHRENE	17,000,000	840,000	ug/kg	**51**
PHENOL	18,000,000	52,000	ug/kg	< 27
PYRENE	200	190,000	ug/kg	**77**
METAL (MG/KG)				
ARSENIC	1.6	5.8	mg/Kg	**11.1**
BARIUM	19,000	1640	mg/kg	**107**
CADMIUM	0.9	7.6	mg/Kg	**0.255 J**
CHROMIUM	--	560,000,000	- -	**27.7**

TABLE 5-11
SWMU 17 Sediment Data
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Analyte	Screening Level[1]	Protection of Groundwater SSLs[2]	Location	S17-SD01
			Sample ID	S17-SD01
			Sample Depth (ft)	0 - 0
			Sample Date	1/18/2012
			UNITS	
LEAD	35.8	280	mg/Kg	**21**
MERCURY	0.174	2	mg/Kg	**0.0228 J**
SELENIUM	2	5.2	mg/Kg	**2.9 J**
SILVER	0.5	12	mg/Kg	< 0.13
GENERAL CHEM (percent)				
MOISTURE	--		- -	**37.4**

Notes:
[1]Screening level is based on the minimum between the USEPA Industrial Regional Screening Level (RSL) based on $1x1^{-6}$ or HQ = 0.1 (November 2011) and USEPA Ecological Soil Screening Levels
[2]USEPA Protection of Groundwater Soil Screening Level (SSL) based dilution attenuation factor of 20 (November 2011
NA = Not analyzed
J = The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.
< = The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was below the reported sample quantitation limit. However, the reported value is approximate.
mg/kg = Milligrams per Kilogram
ug/kg = Micrograms per Kilogram
Bold indicates the analyte was detected
Shading indicates the result exceeded industrial soil RSL
Box indicates the result exceeded protection of groundwater SSL

TABLE 5-12
SWMU 18 Sediment Data
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Analyte	Screening Level[1]	Protection of Groundwater SSLs[2]	UNITS	Location	S18-SD01	S18-SD02		S18-SD03	S18-SD04	S18-SD05
				Sample ID	S18-SD01	HGR-011812-FD02	S18-SD02	S18-SD03	S18-SD04	S18-SD05
				Sample Depth (ft)	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0
				Sample Date	1/18/2012	1/18/2012	1/18/2012	1/18/2012	1/18/2012	1/18/2012
VOC (ug/kg)										
1,1,1,2-TETRACHLOROETHANE	9300	3.8	ug/kg		< 1	< 2	< 2	< 1	< 1	< 2
1,1,1-TRICHLOROETHANE	210	1,400	ug/kg		< 1	< 2	< 2	< 1	< 1	< 2
1,1,2,2-TETRACHLOROETHANE	850	0.52	ug/kg		< 1	< 2	< 2	< 1	< 1	< 2
1,1,2-TRICHLOROETHANE	520	32	ug/kg		< 1	< 2	< 2	< 1	< 1	< 2
1,1-DICHLOROETHANE	0.575	13.6	ug/kg		< 1	< 2	< 2	< 1	< 1	< 2
1,1-DICHLOROETHENE	19	50	ug/kg		< 1	< 2	< 2	< 1	< 1	< 2
1,1-DICHLOROPROPENE	110000	50	ug/kg		< 1	< 2	< 2	< 1	< 1	< 2
1,2,3-TRICHLOROBENZENE	49000	300	ug/kg		< 1	< 2	< 2	< 1	< 1	< 2
1,2,3-TRICHLOROPROPANE	95	0.0056	ug/kg		< 1	< 2	< 2	< 1	< 1	< 2
1,2,4-TRICHLOROBENZENE	5060	4,000	ug/kg		< 1	< 2	< 2	< 1	< 1	< 2
1,2,4-TRIMETHYLBENZENE	26000	420	ug/kg		< 1	< 2	< 2	< 1	< 1	< 2
1,2-DIBROMO-3-CHLOROPROPANE	69	1.72	ug/kg		< 3	< 3	< 3	< 2	< 2	< 3
1,2-DIBROMOETHANE	170	0.28	ug/kg		< 1	< 2	< 2	< 1	< 1	< 2
1,2-DICHLOROETHANE	260	28	ug/kg		< 1	< 2	< 2	< 1	< 1	< 2
1,2-DICHLOROPROPANE	330	34	ug/kg		< 1	< 2	< 2	< 1	< 1	< 2
1,3,5-TRIMETHYLBENZENE	182000	2,400	ug/kg		< 1	< 2	< 2	< 1	< 1	< 2
1,3-DICHLOROPROPANE	1490000	1,980	ug/kg		< 1	< 2	< 2	< 1	< 1	< 2
2,2-DICHLOROPROPANE	4700	34	ug/kg		< 1	< 2	< 2	< 1	< 1	< 2
2-BUTANONE	42	20,000	ug/kg		< 6	**7 J**	< 7	< 4	< 5	< 7
2-CHLOROTOLUENE	907000	3,400	ug/kg		< 1	< 2	< 2	< 1	< 1	< 2
2-HEXANONE	140000	158	ug/kg		< 4	< 5	< 5	< 3	< 4	< 5
4-CHLOROTOLUENE	253000	3,600	ug/kg		< 1	< 2	< 2	< 1	< 1	< 2
4-METHYL-2-PENTANONE	25	4,600	ug/kg		< 4	< 5	< 5	< 3	< 4	< 5
ACETONE	9.9	48,000	ug/kg		**17 J**	**27 J**	**24 J**	< 8	< 9	< 12
BENZENE	140	52	ug/kg		< 0.7	< 0.8	< 0.8	< 0.5	< 0.6	< 0.8
BROMOBENZENE	180000	720	ug/kg		< 1	< 2	< 2	< 1	< 1	< 2
BROMOCHLOROMETHANE	68000	420	ug/kg		< 1	< 2	< 2	< 1	< 1	< 2
BROMODICHLOROMETHANE	1400	440	ug/kg		< 1	< 2	< 2	< 1	< 1	< 2
BROMOFORM	490	420	ug/kg		< 1	< 2	< 2	< 1	< 1	< 2
BROMOMETHANE	3200	36	ug/kg		< 3	< 3	< 3	< 2	< 2	< 3
CARBON DISULFIDE	24	4,200	ug/kg		< 1	< 2	< 2	< 1	< 1	< 2
CARBON TETRACHLORIDE	1450	38	ug/kg		< 1	< 2	< 2	< 1	< 1	< 2
CHLOROBENZENE	290	1,360	ug/kg		< 1	< 2	< 2	< 1	< 1	< 2
CHLOROETHANE	2120000	118,000	ug/kg		< 3	< 3	< 3	< 2	< 2	< 3
CHLOROFORM	120	440	ug/kg		< 1	< 2	< 2	< 1	< 1	< 2
CHLOROMETHANE	50000	980	ug/kg		< 3	< 3	< 3	< 2	< 2	< 3
CIS-1,2-DICHLOROETHENE	200000	420	ug/kg		< 1	< 2	< 2	< 1	< 1	< 2
CIS-1,3-DICHLOROPROPENE	330	3	ug/kg		< 1	< 2	< 2	< 1	< 1	< 2
CYCLOHEXANE	117000	260,000	ug/kg		< 1	< 2	< 2	< 1	< 1	< 2
DIBROMOCHLOROMETHANE	3300	420	ug/kg		< 1	< 2	< 2	< 1	< 1	< 2
DIBROMOMETHANE	11000	38	ug/kg		< 1	< 2	< 2	< 1	< 1	< 2
DICHLORODIFLUOROMETHANE	40000	6,000	ug/kg		< 3	< 3	< 3	< 2	< 2	< 3
ETHYLBENZENE	180	15,600	ug/kg		< 1	< 2	< 2	< 1	< 1	< 2
FREON 113	910000	2,600,000	ug/kg		< 3	< 3	< 3	< 2	< 2	< 3
HEXACHLOROBUTADIENE	27	10	ug/kg		< 3	< 3	< 3	< 2	< 2	< 3
ISOPROPYLBENZENE	268000	12,800	ug/kg		**3 J**	< 2	< 2	< 1	< 1	< 2
M+P-XYLENE	250000	3,600	ug/kg		< 1	< 2	< 2	< 1	< 1	< 2
METHYL ACETATE	29000000	64,000	ug/kg		< 3	< 3	< 3	< 2	< 2	< 3
METHYL TERTIARY BUTYL ETHER	220000	56	ug/kg		< 0.7	< 0.8	< 0.8	< 0.5	< 0.6	< 0.8
METHYLCYCLOHEXANE	--	NA	- -		< 1	< 2	< 2	< 1	< 1	< 2
METHYLENE CHLORIDE	160	26	ug/kg		< 3	< 3	< 3	< 2	**4 J**	< 3
N-BUTYLBENZENE	108000	50,000	ug/kg		< 1	< 2	< 2	< 1	< 1	< 2
N-PROPYLBENZENE	264000	19,800	ug/kg		< 1	< 2	< 2	< 1	< 1	< 2
NAPHTHALENE	180	9.4	ug/kg		< 1	< 2	< 2	< 1	< 1	< 2
O-XYLENE	300000	3,800	ug/kg		< 1	< 2	< 2	< 1	< 1	< 2
P-ISOPROPYLTOLUENE	268000	12,800	ug/kg		< 1	< 2	< 2	< 1	< 1	< 2
SEC-BUTYLBENZENE	268000	12,800	ug/kg		< 1	< 2	< 2	< 1	< 1	< 2
STYRENE	250	2,200	ug/kg		< 1	< 2	< 2	< 1	< 1	< 2
TERT-BUTYLBENZENE	268000	12,800	ug/kg		< 1	< 2	< 2	< 1	< 1	< 2
TETRACHLOROETHENE	990	46	ug/kg		< 1	< 2	< 2	< 1	< 1	< 2
TOLUENE	1220	13,800	ug/kg		< 1	< 2	< 2	< 1	< 1	< 2
TRANS-1,2-DICHLOROETHENE	69000	580	ug/kg		< 1	< 2	< 2	< 1	< 1	< 2
TRANS-1,3-DICHLOROPROPENE	330	3	ug/kg		< 1	< 2	< 2	< 1	< 1	< 2
TRICHLOROETHENE	110	36	ug/kg		< 1	< 2	< 2	< 1	< 1	< 2
TRICHLOROFLUOROMETHANE	340000	13,800	ug/kg		< 3	< 3	< 3	< 2	< 2	< 3
VINYL ACETATE	410000	1,740	ug/kg		< 3	< 3	< 3	< 2	< 2	< 3
VINYL CHLORIDE	200	13.8	ug/kg		< 1	< 2	< 2	< 1	< 1	< 2
SVOC (ug/kg)										
1,1'-BIPHENYL	21000	174	ug/kg		**1400**	**2700**	**2300**	**87**	**22 J**	**45 J**
1,2-DICHLOROBENZENE	290	11,600	ug/kg		< 1	< 2	< 2	< 1	< 1	< 2
1,3-DICHLOROBENZENE	1320	1,440	ug/kg		< 1	< 2	< 2	< 1	< 1	< 2
1,4-DICHLOROBENZENE	320	1,440	ug/kg		< 1	< 2	< 2	< 1	< 1	< 2
1,4-DIOXANE	17000	2.8	ug/kg		**R**	< 1600	< 1600	< 120	< 120	< 150
2,4,5-TRICHLOROPHENOL	210	66,000	ug/kg		< 240	< 260	< 260	< 19	< 20	< 25
2,4,6-TRICHLOROPHENOL	210	260	ug/kg		< 240	< 260	< 260	< 19	< 20	< 25
2,4-DICHLOROPHENOL	82	820	ug/kg		< 240	< 260	< 260	< 19	< 20	< 25
2,4-DIMETHYLPHENOL	300	6,400	ug/kg		< 240	< 260	< 260	< 19	< 20	< 25
2,4-DINITROPHENOL	6.2	680	ug/kg		**R**	< 4700	< 4700	< 350	< 370	< 460
2,4-DINITROTOLUENE	5500	5.6	ug/kg		< 950	< 1000	< 1000	< 78	< 82	< 100

TABLE 5-12
SWMU 18 Sediment Data
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Analyte	Screening Level[1]	Protection of Groundwater SSLs[2]	Location	S18-SD01	S18-SD02		S18-SD03	S18-SD04	S18-SD05
			Sample ID	S18-SD01	HGR-011812-FD02	S18-SD02	S18-SD03	S18-SD04	S18-SD05
			Sample Depth (ft)	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0
			Sample Date	1/18/2012	1/18/2012	1/18/2012	1/18/2012	1/18/2012	1/18/2012
			UNITS						
2,6-DINITROTOLUENE	62000	400	ug/kg	< 240	< 260	< 260	< 19	< 20	< 25
2-CHLORONAPHTHALENE	420	58,000	ug/kg	< 100	< 110	< 110	< 8	< 9	< 11
2-CHLOROPHENOL	32	1,140	ug/kg	< 240	< 260	< 260	< 19	< 20	< 25
2-METHYLNAPHTHALENE	20	2,800	ug/kg	**64 J**	< 52	< 52	**8 J**	**6 J**	**8 J**
2-METHYLPHENOL	3100000	11,600	ug/kg	< 240	< 260	< 260	< 19	< 20	< 25
2-NITROANILINE	600000	1,240	ug/kg	< 240	< 260	< 260	< 19	< 20	< 25
2-NITROPHENOL	13	1,140	ug/kg	< 240	< 260	< 260	< 19	< 20	< 25
3,3'-DICHLOROBENZIDINE	130	14.2	ug/kg	**R**	< 1600	< 1600	< 120	< 120	< 150
3-NITROANILINE	600000	1,240	ug/kg	< 950	< 1000	< 1000	< 78	< 82	< 100
4,6-DINITRO-2-METHYLPHENOL	4900	40	ug/kg	< 2400	< 2600	< 2600	< 190	< 200	< 250
4-BROMOPHENYL-PHENYLETHER	--	NA	- -	< 240	< 260	< 260	< 19	< 20	< 25
4-CHLORO-3-METHYLPHENOL	6200000	26,000	ug/kg	< 240	< 260	< 260	< 19	< 20	< 25
4-CHLOROANILINE	150	2.6	ug/kg	< 240	< 260	< 260	< 19	< 20	< 25
4-CHLOROPHENYL-PHENYLETHER	--	NA	- -	< 240	< 260	< 260	< 19	< 20	< 25
4-METHYLPHENOL	310000	1,140	ug/kg	< 240	< 260	< 260	< 19	< 20	< 25
4-NITROANILINE	86000	28	ug/kg	< 950	< 1000	< 1000	< 78	< 82	< 100
4-NITROPHENOL	13	1.58	ug/kg	**R**	< 2600	< 2600	< 190	< 200	< 250
ACENAPHTHENE	6.1	82,000	ug/kg	< 48	< 52	< 52	< 4	< 4	< 5
ACENAPHTHYLENE	5.9	82,000	ug/kg	**70 J**	< 52	< 52	**7 J**	**21**	**7 J**
ANTHRACENE	57.2	840,000	ug/kg	**270**	< 52	< 52	**8 J**	**45**	**21 J**
BENZO(A)ANTHRACENE	108	200	ug/kg	**720**	**130 J**	**88 J**	**38**	**160**	**28**
BENZO(A)PYRENE	150	4,800	ug/kg	**750**	**110 J**	**97 J**	**46**	**150**	**31**
BENZO(B)FLUORANTHENE	2100	700	ug/kg	930	**210 J**	**160 J**	**77**	**180**	**43**
BENZO(G,H,I)PERYLENE	170	190,000	ug/kg	**560**	**92 J**	**98 J**	**47**	**98**	**28**
BENZO(K)FLUORANTHENE	240	7,000	ug/kg	**550**	**68 J**	**63 J**	**29**	**79**	**19 J**
BENZYL ALCOHOL	6200000	7,400	ug/kg	**R**	< 2600	< 2600	< 190	< 200	< 250
BIS(2-CHLOROETHOXY)METHANE	180000	220	ug/kg	< 240	< 260	< 260	< 19	< 20	< 25
BIS(2-CHLOROETHYL)ETHER	1000	0.062	ug/kg	< 240	< 260	< 260	< 19	< 20	< 25
BIS(2-CHLOROISOPROPYL)ETHER	--	--	- -	< 240	< 260	< 260	< 19	< 20	< 25
BIS(2-ETHYLHEXYL)PHTHALATE	182	28,000	ug/kg	< 950	< 1000	< 1000	< 78	< 82	< 100
BUTYLBENZYLPHTHALATE	1970	4,000	ug/kg	< 950	< 1000	< 1000	< 78	< 82	< 100
CARBAZOLE	--	NA	- -	< 240	< 260	< 260	< 19	< 20	< 25
CHRYSENE	166	22,000	ug/kg	**850 J**	**160 J**	**130 J**	**51**	**140**	**32**
DI-N-BUTYLPHTHALATE	1110	34,000	ug/kg	< 950	< 1000	< 1000	< 78	< 82	< 100
DI-N-OCTYLPHTHALATE	40600	NA	ug/kg	< 950	< 1000	< 1000	< 78	< 82	< 100
DIBENZ(A,H)ANTHRACENE	33	220	ug/kg	**130 J**	< 52	< 52	**14 J**	**27**	< 5
DIBENZOFURAN	450	2,200	ug/kg	< 240	< 260	< 260	< 19	< 20	< 25
DIETHYLPHTHALATE	300	94,000	ug/kg	< 950	< 1000	< 1000	< 78	< 82	< 100
DIMETHYLPHTHALATE	--	NA	- -	< 950	< 1000	< 1000	< 78	< 82	< 100
FLUORANTHENE	420	1,400,000	ug/kg	**2200**	**270**	**220 J**	**98**	**260**	**57**
FLUORENE	77	80,000	ug/kg	**550**	< 52	< 52	< 4	**7 J**	< 5
HEXACHLOROBENZENE	20	260	ug/kg	< 48	< 52	< 52	< 4	< 4	< 5
HEXACHLOROCYCLOPENTADIENE	900	3,200	ug/kg	**R**	< 2600	< 2600	< 190	< 200	< 250
HEXACHLOROETHANE	580	9.6	ug/kg	< 480	< 520	< 520	< 39	< 41	< 51
INDENO(1,2,3-CD)PYRENE	200	2400	ug/kg	**510**	**98 J**	**85 J**	**39**	**90**	**28**
ISOPHORONE	1800000	440	ug/kg	< 240	< 260	< 260	< 19	< 20	< 25
N-NITROSO-DI-N-PROPYLAMINE	250	0.14	ug/kg	< 240	< 260	< 260	< 19	< 20	< 25
N-NITROSODIPHENYLAMINE	350000	1140	ug/kg	< 240	< 260	< 260	< 19	< 20	< 25
NITROBENZENE	24000	1.58	ug/kg	< 240	< 260	< 260	< 19	< 20	< 25
PENTACHLOROPHENOL	2700	200	ug/kg	< 480	< 520	< 520	< 39	< 41	< 51
PHENANTHRENE	17000000	840,000	ug/kg	**1100**	**170 J**	**130 J**	**37**	**30**	**22 J**
PHENOL	18000000	52,000	ug/kg	< 240	< 260	< 260	< 19	< 20	< 25
PYRENE	200	190,000	ug/kg	**1600 J**	**230 J**	**200 J**	**70**	**220**	**51**
METAL (MG/KG)									
ARSENIC	1.6	5.8	mg/Kg	**6.47 J**	**12.9**	**9.45**	**12.2**	**16.4**	**12.3**
BARIUM	19000	1640	mg/kg	**98.5 J**	**64.1**	**58.1**	**42**	**71.4**	**163**
CADMIUM	0.9	7.6	mg/Kg	**0.709 J**	**0.269 J**	**0.188 J**	**0.149 J**	**0.0821 J**	**0.178 J**
CHROMIUM	--	560,000,000	- -	**46.5 J**	**27.8**	**29**	**15.1**	**20.8**	**26.6**
LEAD	35.8	280	mg/Kg	**33.2 J**	**16.4**	**14.9**	**8.86**	**16.3**	**21.6**
MERCURY	0.174	2	mg/Kg	**0.0221 J**	**0.0134 J**	**0.0139 J**	< 0.0079	< 0.0082	**0.0218 J**
SELENIUM	2	5.2	mg/Kg	< 0.96	**2.69 J**	**2.9 J**	**1.98 J**	**4.35**	**3.46**
SILVER	0.5	12	mg/Kg	< 0.117	< 0.128	< 0.13	< 0.0967	< 0.0988	< 0.126
GENERAL CHEM (percent)									
MOISTURE	--		- -	**29.9**	**36.2**	**36.3**	**14.2**	**18.4**	**34.1**

Notes:
[1]Screening level is based on the minimum between the USEPA Industrial Regional Screening Level (RSL) based on 1x1C^{-6} or HQ = 0.1 (November 2011) and USEPA Ecological Soil Screening Levels
[2]USEPA Protection of Groundwater Soil Screening Level (SSL) based dilution attenuation factor of 20 (November 2011)
NA = Not analyzed
J = The analyte was positively identified: the associated numerical value is the approximate concentration of the analyte in the sample.
R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet the quality control criteria. The presence or absence of the analyte cannot be verified.
< = The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was below the reported sample quantitation limit. However, the reported value is approximate.
mg/kg = Milligrams per Kilogram
ug/kg = Micrograms per Kilogram
Bold indicates the analyte was detected
Shading indicates the result exceeded screening criteria
Box indicates the result exceeded protection of groundwater SSL

TABLE 5-13
Groundwater Grab Samples
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Analyte	Location	Spigot	Water Well 2	Water Well 5	
	Sample ID	SG-0000-011812	WW2-0000-011812	HGR-011812-FD01	WW5-0000-011812
	Sample Date	1/18/2012	1/18/2012	1/18/2012	1/18/2012
	Screening Level				
VOC (ug/L)					
1,1,1-TRICHLOROETHANE	--	< 1	< 1	< 1	< 1
1,1,2,2-TETRACHLOROETHANE	--	< 1	< 1	< 1	< 1
1,1,2-TRICHLOROETHANE	--	< 1	< 1	< 1	< 1
1,1-DICHLOROETHANE	--	< 1	< 1	< 1	< 1
1,1-DICHLOROETHENE	--	< 0.9	< 0.9	< 0.9	< 0.9
1,2-DICHLOROETHANE	--	< 1	< 1	< 1	< 1
1,2-DICHLOROPROPANE	--	< 1	< 1	< 1	< 1
2-CHLOROETHYL VINYL ETHER	--	**R**	**R**	**R**	**R**
ACROLEIN	--	< 10	< 10	< 10	< 10
ACRYLONITRILE	--	< 10	< 10	< 10	< 10
BENZENE	--	< 0.9	< 0.9	< 0.9	< 0.9
BROMODICHLOROMETHANE	--	< 0.7	< 0.7	< 0.7	< 0.7
BROMOFORM	--	< 0.8	< 0.8	< 0.8	< 0.8
BROMOMETHANE	--	< 2	< 2	< 2	< 2
CARBON TETRACHLORIDE	--	< 1	< 1	< 1	< 1
CHLOROBENZENE	--	< 0.8	< 0.8	< 0.8	< 0.8
CHLOROETHANE	--	< 2	< 2	< 2	< 2
CHLOROFORM	--	< 1	< 1	< 1	< 1
CHLOROMETHANE	--	< 2	< 2	< 2	< 2
CIS-1,2-DICHLOROETHENE	--	< 1	< 1	< 1	< 1
CIS-1,3-DICHLOROPROPENE	--	< 1	< 1	< 1	< 1
DIBROMOCHLOROMETHANE	--	< 1	< 1	< 1	< 1
ETHYLBENZENE	--	< 0.8	< 0.8	< 0.8	< 0.8
METHYLENE CHLORIDE	--	< 2	< 2	< 2	< 2
TETRACHLOROETHENE	--	< 1	< 1	< 1	< 1
TOLUENE	--	< 0.8	< 0.8	< 0.8	< 0.8
TRANS-1,2-DICHLOROETHENE	--	< 1	< 1	< 1	< 1
TRANS-1,3-DICHLOROPROPENE	--	< 0.6	< 0.6	< 0.6	< 0.6
TRICHLOROETHENE	--	< 1	< 1	< 1	< 1
TRICHLOROFLUOROMETHANE	--	< 2	< 2	< 2	< 2
VINYL CHLORIDE	--	< 2	< 2	< 2	< 2
SVOC (ug/L)					
1,2-DICHLOROBENZENE	--	< 1	< 1	< 1	< 1
1,3-DICHLOROBENZENE	--	< 1	< 1	< 1	< 1
1,4-DICHLOROBENZENE	--	< 1	< 1	< 1	< 1

Notes:
NA = Not analyzed

R = The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet the quality control criteria. The presence or absence of the analyte cannot be verified.
U = The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
UJ = The analyte was below the reported sample quantitation limit. However, the reported value is approximate.
ug/l = Micrograms per Liter
Bold indicates the analyte was detected
FD = Field duplicate

TABLE 6-1
SWMU 1 Step 1: Selection of Chemicals of Potential Concern
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

History:	Former Flaring Pad

Surface Soil

CAS Number	Analyte	Minimum Detected Concentration	Maximum Detected Concentration	Units	Location of Maximum Detection	Frequency of Detection	Range of Detection Limits	Screening Level	Frequency of Exceedance	COPC Flag
95-63-6	1,2,4-Trimethylbenzene	2.0E-03 J	2.0E-03 J	MG/KG	S01-SS07	1 / 8	0.0009 - 0.044	2.6E+01	0 / 8	No
78-93-3	2-Butanone	9.0E-03 J	1.2E-02	MG/KG	S01-SS07	5 / 9	0.004 - 0.18	2.0E+04	0 / 9	No
591-78-6	2-Hexanone	1.7E-02	1.7E-02	MG/KG	S01-SS07	1 / 9	0.003 - 0.13	1.4E+02	0 / 9	No
108-10-1	4-Methyl-2-pentanone	5.0E-03 J	5.0E-03 J	MG/KG	S01-SS07	1 / 9	0.003 - 0.13	3.4E+03	0 / 9	No
67-64-1	Acetone	8.0E-03 J	9.8E-02 J	MG/KG	S01-SS03	8 / 9	0.006 - 0.31	6.3E+04	0 / 9	No
71-43-2	Benzene	6.0E-04 J	3.0E-03 J	MG/KG	S01-SS07	4 / 9	0.0005 - 0.022	5.4E+00	0 / 9	No
108-86-1	Bromobenzene	4.0E-03 J	9.6E-02 J	MG/KG	S01-SS02	2 / 8	0.0009 - 0.044	1.8E+02	0 / 8	No
75-15-0	Carbon disulfide	1.0E-03 J	1.4E-02	MG/KG	S01-SS07	5 / 9	0.0009 - 0.044	3.7E+02	0 / 9	No
108-90-7	Chlorobenzene	3.0E-03 J	3.0E-03 J	MG/KG	S01-SS04	1 / 9	0.0009 - 0.044	1.4E+02	0 / 9	No
156-59-2	cis-1,2-Dichloroethene	5.0E-03 J	5.0E-03 J	MG/KG	S01-SS01	1 / 9	0.0009 - 0.044	2.0E+02	0 / 9	No
110-82-7	Cyclohexane	5.3E-02 J	5.3E-02 J	MG/KG	S01-SS02	1 / 9	0.0009 - 0.044	1.2E+02	0 / 9	No
100-41-4	Ethylbenzene	1.0E-03 J	7.2E-01 J	MG/KG	S01-SS02	3 / 9	0.0009 - 0.044	2.7E+01	0 / 9	No
98-82-8	Isopropylbenzene	2.0E-03 J	2.5E-01 J	MG/KG	S01-SS02	2 / 9	0.0009 - 0.044	2.7E+02	0 / 9	No
179601-23-1	m,p-Xylene	2.0E-03 J	2.0E-03 J	MG/KG	S01-SS07	1 / 9	0.0009 - 0.044	2.5E+02	0 / 9	No
79-20-9	Methyl acetate	1.5E-01 J	1.5E-01 J	MG/KG	S01-SS02	1 / 9	0.002 - 0.089	2.9E+04	0 / 9	No
91-20-3	Naphthalene	2.0E-03 J	2.0E-03 J	MG/KG	S01-SS07	1 / 8	0.0009 - 0.044	1.8E+01	0 / 8	No
103-65-1	n-Propylbenzene	1.0E-01 J	1.0E-01 J	MG/KG	S01-SS02	1 / 8	0.0009 - 0.044	2.6E+02	0 / 8	No
95-47-6	o-Xylene	4.5E-02 J	4.5E-02 J	MG/KG	S01-SS02	1 / 9	0.0009 - 0.044	3.0E+02	0 / 9	No
135-98-8	sec-Butylbenzene	2.0E-03 J	6.7E-02 J	MG/KG	S01-SS02	2 / 8	0.0009 - 0.044	2.7E+02	0 / 8	No
127-18-4	Tetrachloroethene	1.0E-03 J	1.6E+00 J	MG/KG	S01-SS02	8 / 9	0.0009 - 0.044	4.1E+01	0 / 9	No
108-88-3	Toluene	2.0E-03 J	6.0E-03 J	MG/KG	S01-SS07	2 / 9	0.0009 - 0.044	8.2E+02	0 / 9	No
156-60-5	trans-1,2-Dichloroethene	2.0E-03 J	2.0E-03 J	MG/KG	S01-SS01	1 / 9	0.0009 - 0.044	6.9E+01	0 / 9	No
79-01-6	Trichloroethene	3.0E-03 J	6.8E-02 J	MG/KG	S01-SS02	3 / 9	0.0009 - 0.044	2.0E+00	0 / 9	No
92-52-4	1,1'-Biphenyl	2.5E-02 J	6.8E-01	MG/KG	S01-SS06	5 / 9	0.018 - 0.18	2.1E+01	0 / 9	No
105-67-9	2,4-Dimethylphenol	2.5E-02 J	2.5E-02 J	MG/KG	S01-SS09	1 / 9	0.018 - 0.18	1.2E+03	0 / 9	No
91-57-6	2-Methylnaphthalene	4.0E-03 J	2.6E-02	MG/KG	S01-SS09	4 / 9	0.004 - 0.037	3.7E+02	0 / 9	No
106-44-5	4-Methylphenol	6.3E-02	6.3E-02	MG/KG	S01-SS09	1 / 9	0.018 - 0.18	3.1E+02	0 / 9	No
83-32-9	Acenaphthene	7.0E-03 J	6.4E-02 J	MG/KG	S01-SS01	4 / 9	0.004 - 0.037	3.3E+03	0 / 9	No
208-96-8	Acenaphthylene	2.9E-02	1.1E+00	MG/KG	S01-SS09	4 / 9	0.004 - 0.037	3.3E+03	0 / 9	No
120-12-7	Anthracene	1.9E-02 J	1.2E+00	MG/KG	S01-SS09	5 / 9	0.004 - 0.037	1.7E+04	0 / 9	No
56-55-3	Benzo(a)anthracene	1.0E-02 J	3.7E+00	MG/KG	S01-SS09	8 / 9	0.004 - 0.037	2.1E+00	1 / 9	Yes
50-32-8	Benzo(a)pyrene	1.0E-02 J	3.8E+00	MG/KG	S01-SS09	8 / 9	0.004 - 0.037	2.1E-01	3 / 9	Yes
205-99-2	Benzo(b)fluoranthene	5.0E-03 J	5.8E+00	MG/KG	S01-SS09	9 / 9	0.004 - 0.037	2.1E+00	1 / 9	Yes
191-24-2	Benzo(g,h,i)perylene	6.0E-03 J	3.0E+00	MG/KG	S01-SS09	9 / 9	0.004 - 0.037	1.7E+03	0 / 9	No
207-08-9	Benzo(k)fluoranthene	7.0E-03 J	1.8E+00	MG/KG	S01-SS09	8 / 9	0.004 - 0.037	2.1E+01	0 / 9	No
86-74-8	Carbazole	1.2E-01	1.3E-01 J	MG/KG	S01-SS01	2 / 9	0.018 - 0.18	NA	--	No
218-01-9	Chrysene	5.0E-03 J	3.5E+00	MG/KG	S01-SS09	9 / 9	0.004 - 0.037	2.1E+02	0 / 9	No
53-70-3	Dibenz(a,h)anthracene	9.0E-03 J	8.9E-01	MG/KG	S01-SS09	4 / 9	0.004 - 0.037	2.1E-01	1 / 9	Yes
132-64-9	Dibenzofuran	5.1E-02	5.1E-02	MG/KG	S01-SS09	1 / 9	0.018 - 0.18	1.0E+02	0 / 9	No
206-44-0	Fluoranthene	8.0E-03 J	5.6E+00	MG/KG	S01-SS09	9 / 9	0.004 - 0.037	2.2E+03	0 / 9	No
86-73-7	Fluorene	7.0E-03 J	1.0E-01	MG/KG	S01-SS09	4 / 9	0.004 - 0.037	2.2E+03	0 / 9	No
193-39-5	Indeno(1,2,3-cd)pyrene	9.0E-03 J	2.7E+00	MG/KG	S01-SS09	8 / 9	0.004 - 0.037	2.1E+00	1 / 9	Yes
85-01-8	Phenanthrene	8.0E-03 J	1.0E+00	MG/KG	S01-SS09	9 / 9	0.004 - 0.037	1.7E+04	0 / 9	No
108-95-2	Phenol	2.3E-02 J	4.3E-02	MG/KG	S01-SS09	3 / 9	0.018 - 0.18	1.8E+04	0 / 9	No
129-00-0	Pyrene	9.0E-03 J	4.4E+00	MG/KG	S01-SS09	9 / 9	0.004 - 0.037	1.7E+03	0 / 9	No
7440-38-2	Arsenic	6.6E+00	1.6E+01	MG/KG	S01-SS02	9 / 9	0.0868 - 0.095	1.6E+00	9 / 9	Yes
7440-39-3	Barium	8.6E+01	8.6E+02	MG/KG	S01-SS09	9 / 9	0.0201 - 0.0996	1.9E+04	0 / 9	No
7440-43-9	Cadmium	4.2E-02 J	1.1E+00	MG/KG	S01-SS01	9 / 9	0.0213 - 0.0244	8.0E+01	0 / 9	No
7440-47-3	Chromium	1.1E+01	4.4E+01	MG/KG	S01-SS09	9 / 9	0.149 - 0.171	1.5E+05	0 / 9	No
7439-92-1	Lead	5.6E+00	7.4E+01	MG/KG	S01-SS06	9 / 9	0.234 - 1.18	8.0E+02	0 / 9	No
7439-97-6	Mercury	9.8E-03 J	3.3E-02 J	MG/KG	S01-SS01	8 / 9	0.0073 - 0.0082	3.1E+00	0 / 9	No

TABLE 6-1
SWMU 1 Step 1: Selection of Chemicals of Potential Concern
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

History:	Former Flaring Pad

7782-49-2	Selenium	1.3E+00 J	1.5E+01	MG/KG	S01-SS09	4 / 9	0.723 - 0.831	5.1E+02	0 / 9	No
7440-22-4	Silver	2.6E-01 J	2.6E-01 J	MG/KG	S01-SS09	1 / 9	0.0883 - 0.101	5.1E+02	0 / 9	No

Total Soil

CAS Number	Analyte	Minimum Detected Concentration	Maximum Detected Concentration	Units	Location of Maximum Detection	Frequency of Detection	Range of Detection Limits	Screening Level	Frequency of Exceedance	COPC Flag
95-63-6	1,2,4-Trimethylbenzene	2.0E-03 J	2.0E-03 J	MG/KG	S01-SS07	1 / 26	0.0009 - 0.054	2.6E+01	0 / 26	No
78-93-3	2-Butanone	4.0E-03 J	1.2E-02	MG/KG	S01-SS07	9 / 27	0.004 - 0.22	2.0E+04	0 / 27	No
591-78-6	2-Hexanone	5.0E-03 J	1.7E-02	MG/KG	S01-SS07	2 / 27	0.003 - 0.16	1.4E+02	0 / 27	No
108-10-1	4-Methyl-2-pentanone	5.0E-03 J	5.0E-03 J	MG/KG	S01-SS07	1 / 27	0.003 - 0.16	3.4E+03	0 / 27	No
67-64-1	Acetone	8.0E-03 J	9.8E-02 J	MG/KG	S01-SS03	24 / 27	0.006 - 0.38	6.3E+04	0 / 27	No
71-43-2	Benzene	6.0E-04 J	1.6E-01 J	MG/KG	S01-SS02	7 / 27	0.0005 - 0.027	5.4E+00	0 / 27	No
108-86-1	Bromobenzene	4.0E-03 J	9.6E-02 J	MG/KG	S01-SS02	2 / 26	0.0009 - 0.054	1.8E+02	0 / 26	No
75-25-2	Bromoform	1.0E-03 J	1.3E-01 J	MG/KG	S01-SS02	6 / 26	0.0009 - 0.054	2.2E+02	0 / 26	No
75-15-0	Carbon disulfide	1.0E-03 J	1.4E-02	MG/KG	S01-SS07	5 / 27	0.0009 - 0.054	3.7E+02	0 / 27	No
108-90-7	Chlorobenzene	3.0E-03 J	3.0E-03 J	MG/KG	S01-SS04	1 / 27	0.0009 - 0.054	1.4E+02	0 / 27	No
156-59-2	cis-1,2-Dichloroethene	1.0E-03 J	6.0E-03	MG/KG	S01-SS01	5 / 27	0.0009 - 0.054	2.0E+02	0 / 27	No
110-82-7	Cyclohexane	5.3E-02 J	5.3E-02 J	MG/KG	S01-SS02	1 / 27	0.0009 - 0.054	1.2E+02	0 / 27	No
100-41-4	Ethylbenzene	1.0E-03 J	7.2E-01 J	MG/KG	S01-SS02	5 / 27	0.0009 - 0.054	2.7E+01	0 / 27	No
98-82-8	Isopropylbenzene	2.0E-03 J	2.5E-01 J	MG/KG	S01-SS02	3 / 27	0.0009 - 0.054	2.7E+02	0 / 27	No
179601-23-1	m,p-Xylene	2.0E-03 J	2.0E-03 J	MG/KG	S01-SS07	1 / 27	0.0009 - 0.054	2.5E+02	0 / 27	No
79-20-9	Methyl acetate	1.5E-01 J	1.5E-01 J	MG/KG	S01-SS02	1 / 27	0.002 - 0.11	2.9E+04	0 / 27	No
91-20-3	Naphthalene	2.0E-03 J	2.0E-03 J	MG/KG	S01-SS07	1 / 26	0.0009 - 0.054	1.8E+01	0 / 26	No
103-65-1	n-Propylbenzene	1.0E-01 J	1.0E-01 J	MG/KG	S01-SS02	1 / 26	0.0009 - 0.054	2.6E+02	0 / 26	No
95-47-6	o-Xylene	4.5E-02 J	4.5E-02 J	MG/KG	S01-SS02	1 / 27	0.0009 - 0.054	3.0E+02	0 / 27	No
135-98-8	sec-Butylbenzene	2.0E-03 J	6.7E-02 J	MG/KG	S01-SS02	2 / 26	0.0009 - 0.054	2.7E+02	0 / 26	No
127-18-4	Tetrachloroethene	1.0E-03 J	1.6E+00 J	MG/KG	S01-SS02	26 / 27	0.0009 - 0.054	1.1E+02	0 / 27	No
108-88-3	Toluene	2.0E-03 J	6.1E-02 J	MG/KG	S01-SS02	4 / 27	0.0009 - 0.054	8.2E+02	0 / 27	No
156-60-5	trans-1,2-Dichloroethene	2.0E-03 J	2.0E-03 J	MG/KG	S01-SS01	1 / 27	0.0009 - 0.054	6.9E+01	0 / 27	No
79-01-6	Trichloroethene	1.0E-03 J	6.8E-02 J	MG/KG	S01-SS02	9 / 27	0.0009 - 0.054	2.0E+00	0 / 27	No
92-52-4	1,1'-Biphenyl	2.5E-02 J	3.8E+00	MG/KG	S01-SS02	7 / 27	0.018 - 0.18	2.1E+01	0 / 27	No
95-50-1	1,2-Dichlorobenzene	1.0E-03 J	4.0E-03 J	MG/KG	S01-SS08	4 / 26	0.0009 - 0.054	3.8E+02	0 / 26	No
106-46-7	1,4-Dichlorobenzene	2.0E-03 J	2.0E-03 J	MG/KG	S01-SS05	1 / 26	0.0009 - 0.054	1.2E+01	0 / 26	No
105-67-9	2,4-Dimethylphenol	2.5E-02 J	2.5E-02 J	MG/KG	S01-SS09	1 / 27	0.018 - 0.18	1.2E+03	0 / 27	No
91-57-6	2-Methylnaphthalene	4.0E-03 J	2.6E-02	MG/KG	S01-SS09	5 / 27	0.004 - 0.037	3.7E+02	0 / 27	No
99-09-2	3-Nitroaniline	1.0E-01 J	1.0E-01 J	MG/KG	S01-SS02	1 / 27	0.074 - 0.74	6.0E+02	0 / 27	No
106-44-5	4-Methylphenol	6.3E-02	6.3E-02	MG/KG	S01-SS09	1 / 27	0.018 - 0.18	3.1E+02	0 / 27	No
83-32-9	Acenaphthene	7.0E-03 J	6.4E-02 J	MG/KG	S01-SS01	4 / 27	0.004 - 0.037	3.3E+03	0 / 27	No
208-96-8	Acenaphthylene	4.0E-03 J	1.1E+00	MG/KG	S01-SS09	5 / 27	0.004 - 0.037	3.3E+03	0 / 27	No
120-12-7	Anthracene	1.9E-02 J	1.2E+00	MG/KG	S01-SS09	5 / 27	0.004 - 0.037	1.7E+04	0 / 27	No
56-55-3	Benzo(a)anthracene	1.0E-02 J	3.7E+00	MG/KG	S01-SS09	8 / 27	0.004 - 0.037	2.1E+00	1 / 27	Yes
50-32-8	Benzo(a)pyrene	1.0E-02 J	3.8E+00	MG/KG	S01-SS09	8 / 27	0.004 - 0.037	2.1E-01	3 / 27	Yes
205-99-2	Benzo(b)fluoranthene	5.0E-03 J	5.8E+00	MG/KG	S01-SS09	9 / 27	0.004 - 0.037	2.1E+00	1 / 27	Yes
191-24-2	Benzo(g,h,i)perylene	6.0E-03 J	3.0E+00	MG/KG	S01-SS09	9 / 27	0.004 - 0.037	1.7E+03	0 / 27	No
207-08-9	Benzo(k)fluoranthene	7.0E-03 J	1.8E+00	MG/KG	S01-SS09	8 / 27	0.004 - 0.037	2.1E+01	0 / 27	No
86-74-8	Carbazole	1.2E-01	1.3E-01 J	MG/KG	S01-SS01	2 / 27	0.018 - 0.18	NA	--	No
218-01-9	Chrysene	5.0E-03 J	3.5E+00	MG/KG	S01-SS09	9 / 27	0.004 - 0.037	2.1E+02	0 / 27	No
53-70-3	Dibenz(a,h)anthracene	9.0E-03 J	8.9E-01	MG/KG	S01-SS09	4 / 27	0.004 - 0.037	2.1E-01	1 / 27	Yes
132-64-9	Dibenzofuran	5.1E-02	5.1E-02	MG/KG	S01-SS09	1 / 27	0.018 - 0.18	1.0E+02	0 / 27	No
206-44-0	Fluoranthene	8.0E-03 J	5.6E+00	MG/KG	S01-SS09	9 / 27	0.004 - 0.037	2.2E+03	0 / 27	No
86-73-7	Fluorene	7.0E-03 J	1.0E-01	MG/KG	S01-SS09	4 / 27	0.004 - 0.037	2.2E+03	0 / 27	No
193-39-5	Indeno(1,2,3-cd)pyrene	9.0E-03 J	2.7E+00	MG/KG	S01-SS09	8 / 27	0.004 - 0.037	2.1E+00	1 / 27	Yes
85-01-8	Phenanthrene	8.0E-03 J	1.0E+00	MG/KG	S01-SS09	11 / 27	0.004 - 0.037	1.7E+04	0 / 27	No
108-95-2	Phenol	2.3E-02 J	4.3E-02	MG/KG	S01-SS09	3 / 27	0.018 - 0.18	1.8E+04	0 / 27	No
129-00-0	Pyrene	9.0E-03 J	4.4E+00	MG/KG	S01-SS09	10 / 27	0.004 - 0.037	1.7E+03	0 / 27	No
7440-38-2	Arsenic	6.6E+00	1.7E+01	MG/KG	S01-SS09	27 / 27	0.0868 - 0.0986	1.6E+00	27 / 27	Yes
7440-39-3	Barium	3.9E+01	8.6E+02	MG/KG	S01-SS09	27 / 27	0.0201 - 0.0996	1.9E+04	0 / 27	No
7440-43-9	Cadmium	4.2E-02 J	1.4E+00	MG/KG	S01-SS01	27 / 27	0.0213 - 0.025	8.0E+01	0 / 27	No
7440-47-3	Chromium	1.1E+01	4.4E+01	MG/KG	S01-SS09	27 / 27	0.149 - 0.175	1.5E+05	0 / 27	No
7439-92-1	Lead	5.6E+00	7.4E+01	MG/KG	S01-SS06	27 / 27	0.234 - 1.18	8.0E+02	0 / 27	No
7439-97-6	Mercury	9.8E-03 J	4.8E-02 J	MG/KG	S01-SS06	26 / 27	0.0073 - 0.0086	3.1E+00	0 / 27	No
7782-49-2	Selenium	1.3E+00 J	1.5E+01	MG/KG	S01-SS09	4 / 27	0.723 - 0.849	5.1E+02	0 / 27	No
7440-22-4	Silver	2.6E-01 J	2.6E-01 J	MG/KG	S01-SS09	1 / 27	0.0883 - 0.104	5.1E+02	0 / 27	No

Note:
J = Estimated Value
Screening Level = USEPA Industrial Regional Screening Level (RSL) based on $1x10^{-6}$ or HQ = 0.1 (November 2011).
FOE = Frequency of Exceedance
NA = Not applicable/not available
RSL value for m-xylene used as surrogate for m,p-xylene
Soil saturation value for cumene used as surrogate for sec-butylbenzene
RSL value for 2-nitroaniline used as surrogate for 3-nitroaniline
RSL value for acenaphthene used as surrogate for acenaphthylene
RSL value for pyrene used as surrogate for benzo(g,h,i)perylene
RSL value for anthracene used as surrogate for phenanthrene
RSL value for chromium III used as surrogate for chromium

TABLE 6-2

SWMU 1 Step 2: Risk Ratio Screening for Soil, Maximum Detected Concentration

Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Surface Soil

Analyte	Maximum Detected Concentration (Qualifier)	Location of Maximum Detection	Frequency of Detection	Industrial Soil RSL	Acceptable Risk Level	Corresponding Hazard Index[a]	Corresponding Cancer Risk[b]	Target Organ/ Critical Effect
Semi-volatile Organic Compounds (mg/kg)								
Benzo(a)anthracene	3.7E+00	S01-SS09	8 / 9	3.6E+01	1E-06	NA	1E-07	NA
Benzo(a)pyrene	3.8E+00	S01-SS09	8 / 9	1.6E+00	1E-06	NA	2E-06	NA
Benzo(b)fluoranthene	5.8E+00	S01-SS09	9 / 9	1.6E+00	1E-06	NA	4E-06	NA
Benzo(k)fluoranthene	1.8E+00	S01-SS09	8 / 9	1.6E+00	1E-06	NA	1E-06	NA
Chrysene	3.5E+00	S01-SS09	9 / 9	1.6E+00	1E-06	NA	2E-06	NA
Dibenz(a,h)anthracene	8.9E-01	S01-SS09	4 / 9	1.6E+00	1E-06	NA	6E-07	NA
Indeno(1,2,3-cd)pyrene	2.7E+00	S01-SS09	8 / 9	1.6E+00	1E-06	NA	2E-06	NA
Metals (mg/kg)								
Arsenic	1.6E+01	S01-SS02	9 / 9	1.6E+00	1E-06	NA	1E-05	NA
Arsenic	1.6E+01	S01-SS02	9 / 9	2.6E+02	1E+00	0.06	NA	Skin/vascular
Cumulative Corresponding Hazard Index[c]						**0.06**		
Cumulative Corresponding Cancer Risk[d]							**2E-05**	

Total Soil

Analyte	Maximum Detected Concentration (Qualifier)	Location of Maximum Detection	Frequency of Detection	Industrial Soil RSL	Acceptable Risk Level	Corresponding Hazard Index[a]	Corresponding Cancer Risk[b]	Target Organ/ Critical Effect
Semi-volatile Organic Compounds (mg/kg)								
Benzo(a)anthracene	3.7E+00	S01-SS09	8 / 27	3.6E+01	1E-06	NA	1E-07	NA
Benzo(a)pyrene	3.8E+00	S01-SS09	8 / 27	1.6E+00	1E-06	NA	2E-06	NA
Benzo(b)fluoranthene	5.8E+00	S01-SS09	9 / 27	1.6E+00	1E-06	NA	4E-06	NA
Benzo(k)fluoranthene	1.8E+00	S01-SS09	8 / 27	1.6E+00	1E-06	NA	1E-06	NA
Chrysene	3.5E+00	S01-SS09	9 / 27	1.6E+00	1E-06	NA	2E-06	NA
Dibenz(a,h)anthracene	8.9E-01	S01-SS09	4 / 27	1.6E+00	1E-06	NA	6E-07	NA
Indeno(1,2,3-cd)pyrene	2.7E+00	S01-SS09	8 / 27	1.6E+00	1E-06	NA	2E-06	NA
Metals (mg/kg)								
Arsenic	1.7E+01	S01-SS09	27 / 27	1.6E+00	1E-06	NA	1E-05	NA
Arsenic	1.7E+01	S01-SS09	27 / 27	2.6E+02	1E+00	0.07	NA	Skin/vascular
Cumulative Corresponding Hazard Index[c]						**0.07**		
Cumulative Corresponding Cancer Risk[d]							**2E-05**	

[a] Corresponding Hazard Index equals maximum detected concentration divided by the RSL divided by the acceptable risk level.

[b] Corresponding Cancer Risk equals maximum detected concentration divided by the RSL divided by the acceptable risk level.

[c] Cumulative Corresponding Hazard Index equals sum of Corresponding Hazard Indices for each constituent.

[d] Cumulative Corresponding Cancer Risk equals sum of Corresponding Cancer Risks for each constituent.

Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites (USEPA, November 2011). [Online].
Available: http://epa-prgs.ornl.gov/chemicals/index.shtml.

HI = Hazard Index

mg/kg = milligrams per kilogram

NA = Not available/not applicable

TABLE 6-3
SWMU 11 Step 1: Selection of Chemicals of Potential Concern
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

History:	Satellite Accumulation Area - Ethafoam Plant

Surface Soil

CAS Number	Analyte	Minimum Detected Concentration	Maximum Detected Concentration	Units	Location of Maximum Detection	Frequency of Detection	Range of Detection Limits	Screening Level	Frequency of Exceedance	COPC Flag
71-55-6	1,1,1-Trichloroethane	2.0E-03 J	2.0E-03 J	MG/KG	S11-SS05	1 / 5	0.001 - 0.001	6.4E+02	0 / 5	No
78-93-3	2-Butanone	5.0E-03 J	1.8E-02 J	MG/KG	S11-SS01	5 / 5	0.004 - 0.004	2.0E+04	0 / 5	No
67-64-1	Acetone	4.0E-02 J	1.2E-01 J	MG/KG	S11-SS01	5 / 5	0.007 - 0.008	6.3E+04	0 / 5	No
75-15-0	Carbon disulfide	1.0E-03 J	8.0E-03	MG/KG	S11-SS04	2 / 5	0.001 - 0.001	3.7E+02	0 / 5	No
127-18-4	Tetrachloroethene	5.0E-03 J	1.7E-02	MG/KG	S11-SS05	3 / 5	0.001 - 0.001	1.1E+02	0 / 5	No
56-55-3	Benzo(a)anthracene	5.0E-03 J	5.0E-03 J	MG/KG	S11-SS03	1 / 5	0.004 - 0.004	2.1E+00	0 / 5	No
50-32-8	Benzo(a)pyrene	4.0E-03 J	4.0E-03 J	MG/KG	S11-SS03	1 / 5	0.004 - 0.004	2.1E-01	0 / 5	No
205-99-2	Benzo(b)fluoranthene	4.0E-03 J	5.0E-03 J	MG/KG	S11-SS03	2 / 5	0.004 - 0.004	2.1E+00	0 / 5	No
218-01-9	Chrysene	5.0E-03 J	5.0E-03 J	MG/KG	S11-SS03	1 / 5	0.004 - 0.004	2.1E+02	0 / 5	No
206-44-0	Fluoranthene	8.0E-03 J	8.0E-03 J	MG/KG	S11-SS03	1 / 5	0.004 - 0.004	2.2E+03	0 / 5	No
85-01-8	Phenanthrene	6.0E-03 J	6.0E-03 J	MG/KG	S11-SS03	1 / 5	0.004 - 0.004	1.7E+04	0 / 5	No
129-00-0	Pyrene	8.0E-03 J	8.0E-03 J	MG/KG	S11-SS03	1 / 5	0.004 - 0.004	1.7E+03	0 / 5	No
7440-38-2	Arsenic	1.2E+01	1.4E+01	MG/KG	S11-SS02	5 / 5	0.0945 - 0.0961	1.6E+00	5 / 5	Yes
7440-39-3	Barium	1.1E+02	1.9E+02	MG/KG	S11-SS03	5 / 5	0.0212 - 0.0216	1.9E+04	0 / 5	No
7440-43-9	Cadmium	8.3E-01	9.7E-01	MG/KG	S11-SS01	5 / 5	0.0235 - 0.024	8.0E+01	0 / 5	No
7440-47-3	Chromium	2.2E+01	2.5E+01	MG/KG	S11-SS03	5 / 5	0.165 - 0.168	1.5E+05	0 / 5	No
7439-92-1	Lead	1.5E+01	1.6E+01	MG/KG	S11-SS03	5 / 5	0.259 - 0.264	8.0E+02	0 / 5	No
7439-97-6	Mercury	9.5E-03 J	1.8E-02 J	MG/KG	S11-SS01	5 / 5	0.0081 - 0.0085	3.1E+00	0 / 5	No
7782-49-2	Selenium	1.4E+00 J	1.4E+00 J	MG/KG	S11-SS03	1 / 5	0.799 - 0.817	5.1E+02	0 / 5	No

Total Soil

CAS Number	Analyte	Minimum Detected	Maximum Detected	Units	Location of Maximum Detection	Frequency of	Range of Detection Limits	Screening Level	Frequency of Exceedance	COPC Flag
71-55-6	1,1,1-Trichloroethane	2.0E-03 J	2.0E-03 J	MG/KG	S11-SS05	1 / 15	0.001 - 0.001	6.4E+02	0 / 15	No
78-93-3	2-Butanone	5.0E-03 J	1.8E-02 J	MG/KG	S11-SS01	10 / 15	0.004 - 0.005	2.0E+04	0 / 15	No
67-64-1	Acetone	1.5E-02 J	1.2E-01 J	MG/KG	S11-SS01	15 / 15	0.007 - 0.008	6.3E+04	0 / 15	No
71-43-2	Benzene	7.0E-04 J	7.0E-04 J	MG/KG	S11-SS02	1 / 15	0.0005 - 0.0006	5.4E+00	0 / 15	No
75-15-0	Carbon disulfide	1.0E-03 J	8.0E-03	MG/KG	S11-SS04	3 / 15	0.001 - 0.001	3.7E+02	0 / 15	No
110-82-7	Cyclohexane	1.0E-03 J	1.0E-03 J	MG/KG	S11-SS02	1 / 15	0.001 - 0.001	1.2E+02	0 / 15	No
108-87-2	Methylcyclohexane	1.0E-03 J	1.0E-03 J	MG/KG	S11-SS02	1 / 15	0.001 - 0.001	1.4E+02	0 / 15	No
127-18-4	Tetrachloroethene	2.0E-03 J	1.7E-02	MG/KG	S11-SS05	5 / 15	0.001 - 0.001	1.1E+02	0 / 15	No
108-88-3	Toluene	2.0E-03 J	2.0E-03 J	MG/KG	S11-SS02	1 / 15	0.001 - 0.001	8.2E+02	0 / 15	No
56-55-3	Benzo(a)anthracene	5.0E-03 J	5.0E-03 J	MG/KG	S11-SS03	1 / 15	0.004 - 0.004	2.1E+00	0 / 15	No
50-32-8	Benzo(a)pyrene	4.0E-03 J	4.0E-03 J	MG/KG	S11-SS03	1 / 15	0.004 - 0.004	2.1E-01	0 / 15	No
205-99-2	Benzo(b)fluoranthene	4.0E-03 J	5.0E-03 J	MG/KG	S11-SS03	2 / 15	0.004 - 0.004	2.1E+00	0 / 15	No
218-01-9	Chrysene	5.0E-03 J	5.0E-03 J	MG/KG	S11-SS03	1 / 15	0.004 - 0.004	2.1E+02	0 / 15	No
206-44-0	Fluoranthene	4.0E-03 J	8.0E-03 J	MG/KG	S11-SS03	2 / 15	0.004 - 0.004	2.2E+03	0 / 15	No
85-01-8	Phenanthrene	6.0E-03 J	6.0E-03 J	MG/KG	S11-SS03	1 / 15	0.004 - 0.004	1.7E+04	0 / 15	No
129-00-0	Pyrene	6.0E-03 J	8.0E-03 J	MG/KG	S11-SS03	2 / 15	0.004 - 0.004	1.7E+03	0 / 15	No
7440-38-2	Arsenic	1.2E+01	1.5E+01 J	MG/KG	S11-SS04	15 / 15	0.0945 - 0.1	1.6E+00	15 / 15	Yes
7440-39-3	Barium	5.4E+01	1.9E+02	MG/KG	S11-SS03	15 / 15	0.0212 - 0.023	1.9E+04	0 / 15	No
7440-43-9	Cadmium	7.6E-01	1.0E+00	MG/KG	S11-SS04	15 / 15	0.0235 - 0.0256	8.0E+01	0 / 15	No
7440-47-3	Chromium	1.3E+01	2.5E+01	MG/KG	S11-SS03	15 / 15	0.165 - 0.179	1.5E+05	0 / 15	No
7439-92-1	Lead	1.1E+01	1.6E+01	MG/KG	S11-SS03	15 / 15	0.259 - 0.281	8.0E+02	0 / 15	No
7439-97-6	Mercury	9.5E-03 J	3.1E-02 J	MG/KG	S11-SS03	15 / 15	0.0081 - 0.0087	3.1E+00	0 / 15	No
7782-49-2	Selenium	1.4E+00 J	1.4E+00 J	MG/KG	S11-SS03	1 / 15	0.799 - 0.869	5.1E+02	0 / 15	No

Note:
J = Estimated Value
Screening Level = USEPA Industrial Regional Screening Level (RSL) based on $1x10^{-6}$ or HQ = 0.1 (November 2011).
FOE = Frequency of Exceedance
NA = Not applicable/not available
Soil saturation value for n-hexane used as surrogate for methylcylcohexane
RSL value for anthracene used as surrogate for phenanthrene
RSL value for chromium III used as surrogate for chromium

TABLE 6-4

SWMU 11 Step 2: Risk Ratio Screening for Soil, Maximum Detected Concentration

Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Surface Soil

Analyte	Maximum Detected Concentration (Qualifier)	Location of Maximum Detection	Frequency of Detection	Industrial Soil RSL	Acceptable Risk Level	Corresponding Hazard Index[a]	Corresponding Cancer Risk[b]	Target Organ/ Critical Effect
Metals (mg/kg)								
Arsenic	1.4E+01	S11-SS02	5 / 5	1.6E+00	1E-06	NA	9E-06	NA
Arsenic	1.4E+01	S11-SS02	5 / 5	2.6E+02	1E+00	0.05	NA	Skin/vascular
Cumulative Corresponding Hazard Index[c]						**0.05**		
Cumulative Corresponding Cancer Risk[d]							**9E-06**	

Total Soil

Analyte	Maximum Detected Concentration (Qualifier)	Location of Maximum Detection	Frequency of Detection	Industrial Soil RSL	Acceptable Risk Level	Corresponding Hazard Index[a]	Corresponding Cancer Risk[b]	Target Organ/ Critical Effect
Metals (mg/kg)								
Arsenic	1.5E+01 J	S11-SS04	15 / 15	1.6E+00	1E-06	NA	1E-05	NA
Arsenic	1.5E+01 J	S11-SS04	15 / 15	2.6E+02	1E+00	0.06	NA	Skin/vascular
Cumulative Corresponding Hazard Index[c]						**0.06**		
Cumulative Corresponding Cancer Risk[d]							**1E-05**	

[a] Corresponding Hazard Index equals maximum detected concentration divided by the RSL divided by the acceptable risk level.

[b] Corresponding Cancer Risk equals maximum detected concentration divided by the RSL divided by the acceptable risk level.

[c] Cumulative Corresponding Hazard Index equals sum of Corresponding Hazard Indices for each constituent.

[d] Cumulative Corresponding Cancer Risk equals sum of Corresponding Cancer Risks for each constituent.

Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites (USEPA, November 2011). [Online].
Available: http://epa-prgs.ornl.gov/chemicals/index.shtml.

HI = Hazard Index

mg/kg = milligrams per kilogram

NA = Not available/not applicable

TABLE 6-5
SWMU 12 Step 1: Selection of Chemicals of Potential Concern
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

History:	Former Methylene Chloride Cleaning Tank

Surface Soil

CAS Number	Analyte	Minimum Detected Concentration	Maximum Detected Concentration	Units	Location of Maximum Detection	Frequency of Detection	Range of Detection Limits	Screening Level	Frequency of Exceedance	COPC Flag
67-64-1	Acetone	9.0E-03 J	1.7E-02 J	MG/KG	S12-SS02	2 / 2	0.006 - 0.006	6.3E+04	0 / 2	No
75-15-0	Carbon disulfide	2.0E-03 J	2.0E-03 J	MG/KG	S12-SS01	1 / 2	0.0008 - 0.0009	3.7E+02	0 / 2	No
75-09-2	Methylene chloride	2.0E-03 J	2.0E-03 J	MG/KG	S12-SS02	1 / 2	0.002 - 0.002	5.3E+01	0 / 2	No
92-52-4	1,1'-Biphenyl	7.6E-02	7.6E-02	MG/KG	S12-SS02	1 / 2	0.018 - 0.019	2.1E+01	0 / 2	No
91-57-6	2-Methylnaphthalene	1.3E-02 J	1.3E-02 J	MG/KG	S12-SS02	1 / 2	0.004 - 0.004	3.7E+02	0 / 2	No
83-32-9	Acenaphthene	5.0E-03 J	5.0E-03 J	MG/KG	S12-SS02	1 / 2	0.004 - 0.004	3.3E+03	0 / 2	No
120-12-7	Anthracene	6.0E-03 J	6.0E-03 J	MG/KG	S12-SS02	1 / 2	0.004 - 0.004	1.7E+04	0 / 2	No
56-55-3	Benzo(a)anthracene	2.0E-02	2.0E-02	MG/KG	S12-SS02	1 / 2	0.004 - 0.004	2.1E+00	0 / 2	No
50-32-8	Benzo(a)pyrene	1.9E-02 J	1.9E-02 J	MG/KG	S12-SS02	1 / 2	0.004 - 0.004	2.1E-01	0 / 2	No
205-99-2	Benzo(b)fluoranthene	3.2E-02	3.2E-02	MG/KG	S12-SS02	1 / 2	0.004 - 0.004	2.1E+00	0 / 2	No
191-24-2	Benzo(g,h,i)perylene	1.3E-02 J	1.3E-02 J	MG/KG	S12-SS02	1 / 2	0.004 - 0.004	1.7E+03	0 / 2	No
207-08-9	Benzo(k)fluoranthene	9.0E-03 J	9.0E-03 J	MG/KG	S12-SS02	1 / 2	0.004 - 0.004	2.1E+01	0 / 2	No
218-01-9	Chrysene	3.2E-02	3.2E-02	MG/KG	S12-SS02	1 / 2	0.004 - 0.004	2.1E+02	0 / 2	No
206-44-0	Fluoranthene	6.7E-02	6.7E-02	MG/KG	S12-SS02	1 / 2	0.004 - 0.004	2.2E+03	0 / 2	No
86-73-7	Fluorene	7.0E-03 J	7.0E-03 J	MG/KG	S12-SS02	1 / 2	0.004 - 0.004	2.2E+03	0 / 2	No
193-39-5	Indeno(1,2,3-cd)pyrene	8.0E-03 J	8.0E-03 J	MG/KG	S12-SS02	1 / 2	0.004 - 0.004	2.1E+00	0 / 2	No
85-01-8	Phenanthrene	4.0E-03 J	6.0E-02	MG/KG	S12-SS02	2 / 2	0.004 - 0.004	1.7E+04	0 / 2	No
129-00-0	Pyrene	5.0E-02	5.0E-02	MG/KG	S12-SS02	1 / 2	0.004 - 0.004	1.7E+03	0 / 2	No
7440-38-2	Arsenic	8.5E+00	1.2E+01	MG/KG	S12-SS02	2 / 2	0.0824 - 0.0895	1.6E+00	2 / 2	Yes
7440-39-3	Barium	7.1E+01	7.9E+01	MG/KG	S12-SS02	2 / 2	0.0187 - 0.0199	1.9E+04	0 / 2	No
7440-43-9	Cadmium	1.9E-01 J	2.0E-01 J	MG/KG	S12-SS02	2 / 2	0.0208 - 0.0222	8.0E+01	0 / 2	No
7440-47-3	Chromium	8.7E+00	1.7E+01	MG/KG	S12-SS02	2 / 2	0.146 - 0.155	1.5E+05	0 / 2	No
7439-92-1	Lead	3.5E+00	9.0E+00	MG/KG	S12-SS02	2 / 2	0.229 - 0.244	8.0E+02	0 / 2	No
7439-97-6	Mercury	2.6E-02 J	2.6E-02 J	MG/KG	S12-SS02	1 / 2	0.0075 - 0.0077	3.1E+00	0 / 2	No
7782-49-2	Selenium	7.7E-01 J	7.7E-01 J	MG/KG	S12-SS02	1 / 2	0.707 - 0.754	5.1E+02	0 / 2	No

Total Soil

CAS Number	Analyte	Minimum Detected Concentration	Maximum Detected Concentration	Units	Location of Maximum Detection	Frequency of Detection	Range of Detection Limits	Screening Level	Frequency of Exceedance	COPC Flag
67-64-1	Acetone	9.0E-03 J	1.7E-02 J	MG/KG	S12-SS01, S12-SS02	3 / 6	0.006 - 0.008	6.3E+04	0 / 6	No
75-15-0	Carbon disulfide	2.0E-03 J	2.0E-03 J	MG/KG	S12-SS01	1 / 6	0.0008 - 0.001	3.7E+02	0 / 6	No
75-09-2	Methylene chloride	2.0E-03 J	5.0E-03 J	MG/KG	S12-SS02	2 / 6	0.002 - 0.002	5.3E+01	0 / 6	No
92-52-4	1,1'-Biphenyl	7.6E-02	7.6E-02	MG/KG	S12-SS02	1 / 6	0.018 - 0.021	2.1E+01	0 / 6	No
91-57-6	2-Methylnaphthalene	1.3E-02 J	1.3E-02 J	MG/KG	S12-SS02	1 / 6	0.004 - 0.004	3.7E+02	0 / 6	No
83-32-9	Acenaphthene	5.0E-03 J	5.0E-03 J	MG/KG	S12-SS02	1 / 6	0.004 - 0.004	3.3E+03	0 / 6	No
120-12-7	Anthracene	6.0E-03 J	6.0E-03 J	MG/KG	S12-SS02	1 / 6	0.004 - 0.004	1.7E+04	0 / 6	No
56-55-3	Benzo(a)anthracene	6.0E-03 J	2.0E-02	MG/KG	S12-SS02	2 / 6	0.004 - 0.004	2.1E+00	0 / 6	No
50-32-8	Benzo(a)pyrene	8.0E-03 J	1.9E-02 J	MG/KG	S12-SS02	2 / 6	0.004 - 0.004	2.1E-01	0 / 6	No
205-99-2	Benzo(b)fluoranthene	1.1E-02 J	3.2E-02	MG/KG	S12-SS02	2 / 6	0.004 - 0.004	2.1E+00	0 / 6	No
191-24-2	Benzo(g,h,i)perylene	6.0E-03 J	1.3E-02 J	MG/KG	S12-SS02	2 / 6	0.004 - 0.004	1.7E+03	0 / 6	No
207-08-9	Benzo(k)fluoranthene	5.0E-03 J	9.0E-03 J	MG/KG	S12-SS02	2 / 6	0.004 - 0.004	2.1E+01	0 / 6	No
117-81-7	Bis(2-ethylhexyl)phthalate	9.8E-02 J	9.8E-02 J	MG/KG	S12-SS02	1 / 6	0.071 - 0.083	1.2E+02	0 / 6	No
218-01-9	Chrysene	9.0E-03 J	3.2E-02	MG/KG	S12-SS02	2 / 6	0.004 - 0.004	2.1E+02	0 / 6	No
206-44-0	Fluoranthene	1.6E-02 J	6.7E-02	MG/KG	S12-SS02	2 / 6	0.004 - 0.004	2.2E+03	0 / 6	No
86-73-7	Fluorene	7.0E-03 J	7.0E-03 J	MG/KG	S12-SS02	1 / 6	0.004 - 0.004	2.2E+03	0 / 6	No
193-39-5	Indeno(1,2,3-cd)pyrene	5.0E-03 J	8.0E-03 J	MG/KG	S12-SS02	2 / 6	0.004 - 0.004	2.1E+00	0 / 6	No
85-01-8	Phenanthrene	4.0E-03 J	6.0E-02	MG/KG	S12-SS02	3 / 6	0.004 - 0.004	1.7E+04	0 / 6	No
129-00-0	Pyrene	1.4E-02 J	5.0E-02	MG/KG	S12-SS02	2 / 6	0.004 - 0.004	1.7E+03	0 / 6	No
7440-38-2	Arsenic	7.5E+00	1.4E+01	MG/KG	S12-SS02	6 / 6	0.0824 - 0.0975	1.6E+00	6 / 6	Yes
7440-39-3	Barium	6.7E+01	1.4E+02	MG/KG	S12-SS02	6 / 6	0.0187 - 0.0217	1.9E+04	0 / 6	No
7440-43-9	Cadmium	9.9E-02 J	2.3E-01 J	MG/KG	S12-SS01	6 / 6	0.0208 - 0.0241	8.0E+01	0 / 6	No
7440-47-3	Chromium	7.7E+00	2.0E+01	MG/KG	S12-SS02	6 / 6	0.146 - 0.169	1.5E+05	0 / 6	No
7439-92-1	Lead	3.5E+00	1.2E+01	MG/KG	S12-SS02	6 / 6	0.229 - 0.266	8.0E+02	0 / 6	No
7439-97-6	Mercury	2.5E-02 J	2.6E-02 J	MG/KG	S12-SS02	2 / 6	0.0073 - 0.0084	3.1E+00	0 / 6	No
7782-49-2	Selenium	7.7E-01 J	7.7E-01 J	MG/KG	S12-SS02	1 / 6	0.707 - 0.821	5.1E+02	0 / 6	No

Note:
J = Estimated Value
Screening Level = USEPA Industrial Regional Screening Level (RSL) based on $1x10^{-6}$ or HQ = 0.1 (November 2011).
FOE = Frequency of Exceedance
NA = Not applicable/not available
RSL value for pyrene used as surrogate for benzo(g,h,i)perylene
RSL value for anthracene used as surrogate for phenanthrene
RSL value for chromium III used as surrogate for chromium

TABLE 6-6
SWMU 12 Step 2: Risk Ratio Screening for Soil, Maximum Detected Concentration
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Surface Soil

Analyte	Maximum Detected Concentration (Qualifier)	Location of Maximum Detection	Frequency of Detection	Industrial Soil RSL	Acceptable Risk Level	Corresponding Hazard Index[a]	Corresponding Cancer Risk[b]	Target Organ/ Critical Effect
Metals (mg/kg)								
Arsenic	1.2E+01	S12-SS02	2 / 2	1.6E+00	1E-06	NA	8E-06	NA
Arsenic	1.2E+01	S12-SS02	2 / 2	2.6E+02	1E+00	0.05	NA	Skin/vascular
Cumulative Corresponding Hazard Index[c]						**0.05**		
Cumulative Corresponding Cancer Risk[d]							**8E-06**	

Total Soil

Analyte	Maximum Detected Concentration (Qualifier)	Location of Maximum Detection	Frequency of Detection	Industrial Soil RSL	Acceptable Risk Level	Corresponding Hazard Index[a]	Corresponding Cancer Risk[b]	Target Organ/ Critical Effect
Metals (mg/kg)								
Arsenic	1.4E+01	S12-SS02	6 / 6	1.6E+00	1E-06	NA	8E-06	NA
Arsenic	1.4E+01	S12-SS02	6 / 6	2.6E+02	1E+00	0.05	NA	Skin/vascular
Cumulative Corresponding Hazard Index[c]						**0.05**		
Cumulative Corresponding Cancer Risk[d]							**8E-06**	

[a] Corresponding Hazard Index equals maximum detected concentration divided by the RSL divided by the acceptable risk level.
[b] Corresponding Cancer Risk equals maximum detected concentration divided by the RSL divided by the acceptable risk level.
[c] Cumulative Corresponding Hazard Index equals sum of Corresponding Hazard Indices for each constituent.
[d] Cumulative Corresponding Cancer Risk equals sum of Corresponding Cancer Risks for each constituent.
Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites (USEPA, November 2011). [Online].
Available: http://epa-prgs.ornl.gov/chemicals/index.shtml.
HI = Hazard Index
mg/kg = milligrams per kilogram
NA = Not available/not applicable

TABLE 6-7
SWMU 15 Step 1: Selection of Chemicals of Potential Concern
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

History:	Two Section Septic Tank System

Surface Soil

CAS Number	Analyte	Minimum Detected Concentration	Maximum Detected Concentration	Units	Location of Maximum Detection	Frequency of Detection	Range of Detection Limits	Screening Level	Frequency of Exceedance	COPC Flag
78-93-3	2-Butanone	6.0E-03 J	3.7E-02 J	MG/KG	S15-SS03	3 / 4	0.004 - 0.005	2.0E+04	0 / 4	No
591-78-6	2-Hexanone	9.0E-03 J	9.0E-03 J	MG/KG	S15-SS03	1 / 4	0.003 - 0.004	1.4E+02	0 / 4	No
67-64-1	Acetone	2.5E-02 J	1.8E-01 J	MG/KG	S15-SS01	4 / 4	0.007 - 0.009	6.3E+04	0 / 4	No
75-15-0	Carbon disulfide	3.0E-03 J	1.1E-02	MG/KG	S15-SS04	2 / 4	0.0009 - 0.001	3.7E+02	0 / 4	No
75-09-2	Methylene chloride	3.0E-03 J	3.0E-03 J	MG/KG	S15-SS03	1 / 4	0.002 - 0.003	5.3E+01	0 / 4	No
92-52-4	1,1'-Biphenyl	6.6E-02	6.6E-02	MG/KG	S15-SS04	1 / 4	0.019 - 0.18	2.1E+01	0 / 4	No
91-57-6	2-Methylnaphthalene	1.8E-02 J	7.2E-02	MG/KG	S15-SS04	2 / 4	0.004 - 0.037	3.7E+02	0 / 4	No
83-32-9	Acenaphthene	4.0E-03 J	1.4E-01 J	MG/KG	S15-SS03	4 / 4	0.004 - 0.037	3.3E+03	0 / 4	No
208-96-8	Acenaphthylene	5.0E-03 J	2.3E-01	MG/KG	S15-SS03	4 / 4	0.004 - 0.037	3.3E+03	0 / 4	No
120-12-7	Anthracene	1.0E-02 J	1.1E+00	MG/KG	S15-SS03	4 / 4	0.004 - 0.037	1.7E+04	0 / 4	No
56-55-3	Benzo(a)anthracene	4.0E-02	6.1E+00 J	MG/KG	S15-SS03	4 / 4	0.004 - 0.037	2.1E+00	1 / 4	Yes
50-32-8	Benzo(a)pyrene	4.1E-02	6.5E+00 J	MG/KG	S15-SS03	4 / 4	0.004 - 0.037	2.1E-01	1 / 4	Yes
205-99-2	Benzo(b)fluoranthene	6.7E-02	8.7E+00 J	MG/KG	S15-SS03	4 / 4	0.004 - 0.037	2.1E+00	1 / 4	Yes
191-24-2	Benzo(g,h,i)perylene	3.1E-02	4.7E+00 J	MG/KG	S15-SS03	4 / 4	0.004 - 0.037	1.7E+03	0 / 4	No
207-08-9	Benzo(k)fluoranthene	2.4E-02	3.7E+00 J	MG/KG	S15-SS03	4 / 4	0.004 - 0.037	2.1E+01	0 / 4	No
86-74-8	Carbazole	2.3E-02 J	4.8E-01	MG/KG	S15-SS03	3 / 4	0.019 - 0.18	NA	--	NA
218-01-9	Chrysene	4.3E-02	6.0E+00	MG/KG	S15-SS03	4 / 4	0.004 - 0.037	2.1E+02	0 / 4	No
53-70-3	Dibenz(a,h)anthracene	5.0E-03 J	8.6E-01 J	MG/KG	S15-SS03	4 / 4	0.004 - 0.037	2.1E-01	1 / 4	Yes
132-64-9	Dibenzofuran	4.4E-02	2.2E-01 J	MG/KG	S15-SS03	2 / 4	0.019 - 0.18	1.0E+02	0 / 4	No
206-44-0	Fluoranthene	9.7E-02	1.5E+01	MG/KG	S15-SS03	4 / 4	0.004 - 0.037	2.2E+03	0 / 4	No
86-73-7	Fluorene	1.5E-02 J	1.4E-01 J	MG/KG	S15-SS03	3 / 4	0.004 - 0.037	2.2E+03	0 / 4	No
193-39-5	Indeno(1,2,3-cd)pyrene	3.1E-02	4.5E+00 J	MG/KG	S15-SS03	4 / 4	0.004 - 0.037	2.1E+00	1 / 4	Yes
85-01-8	Phenanthrene	4.9E-02	6.5E+00	MG/KG	S15-SS03	4 / 4	0.004 - 0.037	1.7E+04	0 / 4	No
129-00-0	Pyrene	7.8E-02	1.2E+01 J	MG/KG	S15-SS03	4 / 4	0.004 - 0.037	1.7E+03	0 / 4	No
7440-38-2	Arsenic	5.2E+00	1.2E+01 J	MG/KG	S15-SS04	4 / 4	0.0854 - 0.0962	1.6E+00	4 / 4	Yes
7440-39-3	Barium	1.3E+02	3.8E+02	MG/KG	S15-SS03	4 / 4	0.0193 - 0.0214	1.9E+04	0 / 4	No
7440-43-9	Cadmium	3.2E-01 J	7.1E-01	MG/KG	S15-SS04	4 / 4	0.0214 - 0.0238	8.0E+01	0 / 4	No
7440-47-3	Chromium	1.7E+01	3.1E+01	MG/KG	S15-SS04	4 / 4	0.15 - 0.167	1.5E+05	0 / 4	No
7439-92-1	Lead	7.6E+00	2.1E+01 J	MG/KG	S15-SS01	4 / 4	0.236 - 0.262	8.0E+02	0 / 4	No
7439-97-6	Mercury	1.8E-02 J	3.5E-02 J	MG/KG	S15-SS01	3 / 4	0.0076 - 0.0082	3.1E+00	0 / 4	No
7782-49-2	Selenium	3.0E+00	6.7E+00	MG/KG	S15-SS03	2 / 4	0.729 - 0.81	5.1E+02	0 / 4	No
7440-22-4	Silver	9.6E-01	9.6E-01	MG/KG	S15-SS03	1 / 4	0.0889 - 0.0989	5.1E+02	0 / 4	No

TABLE 6-7
SWMU 15 Step 1: Selection of Chemicals of Potential Concern
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

History:	Two Section Septic Tank System

Total Soil

CAS Number	Analyte	Minimum Detected Concentration	Maximum Detected Concentration	Units	Location of Maximum Detection	Frequency of Detection	Range of Detection Limits	Screening Level	Frequency of Exceedance	COPC Flag
87-61-6	1,2,3-Trichlorobenzene	1.4E-01 J	1.4E-01 J	MG/KG	S15-SS03	1 / 12	0.0009 - 0.056	4.9E+01	0 / 12	No
120-82-1	1,2,4-Trichlorobenzene	1.0E-01 J	1.0E-01 J	MG/KG	S15-SS03	1 / 12	0.0009 - 0.056	2.7E+01	0 / 12	No
78-93-3	2-Butanone	6.0E-03 J	3.7E-02 J	MG/KG	S15-SS03	7 / 12	0.004 - 0.23	2.0E+04	0 / 12	No
591-78-6	2-Hexanone	9.0E-03 J	9.0E-03 J	MG/KG	S15-SS03	1 / 12	0.003 - 0.17	1.4E+02	0 / 12	No
67-64-1	Acetone	1.9E-02 J	1.8E-01 J	MG/KG	S15-SS01	10 / 12	0.007 - 0.4	6.3E+04	0 / 12	No
71-43-2	Benzene	2.8E-01 J	2.8E-01 J	MG/KG	S15-SS03	1 / 12	0.0005 - 0.028	5.4E+00	0 / 12	No
75-15-0	Carbon disulfide	1.0E-03 J	1.1E-02	MG/KG	S15-SS04	4 / 12	0.0009 - 0.056	3.7E+02	0 / 12	No
156-59-2	cis-1,2-Dichloroethene	1.0E-03 J	1.0E-03 J	MG/KG	S15-SS04	1 / 12	0.0009 - 0.056	2.0E+02	0 / 12	No
100-41-4	Ethylbenzene	2.0E-03 J	3.3E-01	MG/KG	S15-SS03	3 / 12	0.0009 - 0.056	2.7E+01	0 / 12	No
98-82-8	Isopropylbenzene	3.1E-02	3.0E+00	MG/KG	S15-SS02	3 / 12	0.0009 - 0.056	2.7E+02	0 / 12	No
79-20-9	Methyl acetate	1.6E-01 J	1.7E-01 J	MG/KG	S15-SS03	2 / 12	0.002 - 0.11	2.9E+04	0 / 12	No
75-09-2	Methylene chloride	3.0E-03 J	3.0E-03 J	MG/KG	S15-SS03	1 / 12	0.002 - 0.11	5.3E+01	0 / 12	No
91-20-3	Naphthalene	6.8E-02 J	6.8E-02 J	MG/KG	S15-SS03	1 / 12	0.0009 - 0.056	1.8E+01	0 / 12	No
104-51-8	n-Butylbenzene	1.0E-03 J	8.9E-02 J	MG/KG	S15-SS03	2 / 12	0.0009 - 0.056	1.1E+02	0 / 12	No
103-65-1	n-Propylbenzene	2.0E-03 J	3.8E-01	MG/KG	S15-SS02	3 / 12	0.0009 - 0.056	2.6E+02	0 / 12	No
135-98-8	sec-Butylbenzene	2.0E-03 J	2.9E+00	MG/KG	S15-SS02	4 / 12	0.0009 - 0.056	2.7E+02	0 / 12	No
108-88-3	Toluene	8.1E-02 J	8.1E-02 J	MG/KG	S15-SS03	1 / 12	0.0009 - 0.056	8.2E+02	0 / 12	No
92-52-4	1,1'-Biphenyl	1.9E-02 J	6.6E-02	MG/KG	S15-SS04	2 / 12	0.019 - 0.18	2.1E+01	0 / 12	No
91-57-6	2-Methylnaphthalene	4.0E-03 J	7.2E-02	MG/KG	S15-SS01, S15-SS04	10 / 12	0.004 - 0.037	3.7E+02	0 / 12	No
83-32-9	Acenaphthene	4.0E-03 J	1.4E-01 J	MG/KG	S15-SS03	8 / 12	0.004 - 0.037	3.3E+03	0 / 12	No
208-96-8	Acenaphthylene	4.0E-03 J	2.3E-01	MG/KG	S15-SS03	10 / 12	0.004 - 0.037	3.3E+03	0 / 12	No
120-12-7	Anthracene	5.0E-03 J	1.1E+00	MG/KG	S15-SS03	11 / 12	0.004 - 0.037	1.7E+04	0 / 12	No
56-55-3	Benzo(a)anthracene	1.0E-02 J	6.1E+00 J	MG/KG	S15-SS03	12 / 12	0.004 - 0.037	2.1E+00	1 / 12	Yes
50-32-8	Benzo(a)pyrene	1.0E-02 J	6.5E+00 J	MG/KG	S15-SS03	12 / 12	0.004 - 0.037	2.1E-01	1 / 12	Yes
205-99-2	Benzo(b)fluoranthene	1.5E-02 J	8.7E+00 J	MG/KG	S15-SS03	12 / 12	0.004 - 0.037	2.1E+00	1 / 12	Yes
191-24-2	Benzo(g,h,i)perylene	9.0E-03 J	4.7E+00 J	MG/KG	S15-SS03	12 / 12	0.004 - 0.037	1.7E+03	0 / 12	No
207-08-9	Benzo(k)fluoranthene	5.0E-03 J	3.7E+00 J	MG/KG	S15-SS03	12 / 12	0.004 - 0.037	2.1E+01	0 / 12	No
86-74-8	Carbazole	2.3E-02 J	4.8E-01	MG/KG	S15-SS03	5 / 12	0.019 - 0.18	(blank)		NA
218-01-9	Chrysene	1.2E-02 J	6.0E+00	MG/KG	S15-SS03	12 / 12	0.004 - 0.037	2.1E+02	0 / 12	No
53-70-3	Dibenz(a,h)anthracene	5.0E-03 J	8.6E-01 J	MG/KG	S15-SS03	9 / 12	0.004 - 0.037	2.1E-01	1 / 12	Yes
132-64-9	Dibenzofuran	2.7E-02 J	2.2E-01 J	MG/KG	S15-SS03	4 / 12	0.019 - 0.18	1.0E+02	0 / 12	No
206-44-0	Fluoranthene	2.0E-02 J	1.5E+01	MG/KG	S15-SS03	12 / 12	0.004 - 0.037	2.2E+03	0 / 12	No
86-73-7	Fluorene	7.0E-03 J	1.4E-01 J	MG/KG	S15-SS03	8 / 12	0.004 - 0.037	2.2E+03	0 / 12	No
193-39-5	Indeno(1,2,3-cd)pyrene	7.0E-03 J	4.5E+00 J	MG/KG	S15-SS03	12 / 12	0.004 - 0.037	2.1E+00	1 / 12	Yes
98-95-3	Nitrobenzene	6.6E-02	6.6E-02	MG/KG	S15-SS01	1 / 12	0.019 - 0.18	2.4E+01	0 / 12	No
87-86-5	Pentachlorophenol	5.5E-02 J	5.5E-02 J	MG/KG	S15-SS04	1 / 12	0.038 - 0.37	2.7E+00	0 / 12	No
85-01-8	Phenanthrene	2.6E-02	6.5E+00	MG/KG	S15-SS03	12 / 12	0.004 - 0.037	1.7E+04	0 / 12	No
129-00-0	Pyrene	1.9E-02 J	1.2E+01 J	MG/KG	S15-SS03	12 / 12	0.004 - 0.037	1.7E+03	0 / 12	No
7440-38-2	Arsenic	5.2E+00	1.3E+01	MG/KG	S15-SS04	12 / 12	0.0854 - 0.104	1.6E+00	12 / 12	Yes
7440-39-3	Barium	1.1E+02	3.8E+02	MG/KG	S15-SS03	12 / 12	0.0193 - 0.0233	1.9E+04	0 / 12	No
7440-43-9	Cadmium	3.2E-01 J	7.3E-01	MG/KG	S15-SS04	12 / 12	0.0214 - 0.0254	8.0E+01	0 / 12	No
7440-47-3	Chromium	1.7E+01	3.1E+01	MG/KG	S15-SS04	12 / 12	0.15 - 0.178	1.5E+05	0 / 12	No
7439-92-1	Lead	7.6E+00	6.1E+01 J	MG/KG	S15-SS01	12 / 12	0.236 - 0.279	8.0E+02	0 / 12	No
7439-97-6	Mercury	1.7E-02 J	4.5E+00 J	MG/KG	S15-SS04	11 / 12	0.0076 - 0.415	3.1E+00	1 / 12	Yes
7782-49-2	Selenium	7.8E-01 J	6.7E+00	MG/KG	S15-SS03	4 / 12	0.729 - 0.863	5.1E+02	0 / 12	No
7440-22-4	Silver	9.6E-01	9.6E-01	MG/KG	S15-SS03	1 / 12	0.0889 - 0.105	5.1E+02	0 / 12	No

Note:
J = Estimated Value
Screening Level = USEPA Industrial Regional Screening Level (RSL) based on $1x10^{-6}$ or HQ = 0.1 (November 2011).
FOE = Frequency of Exceedance
NA = Not applicable/not available
Soil saturation value for cumene used as surrogate for sec-butylbenzene
RSL value for acenaphthene used as surrogate for acenaphthylene
RSL value for pyrene used as surrogate for benzo(g,h,i)perylene
RSL value for anthracene used as surrogate for phenanthrene
RSL value for chromium III used as surrogate for chromium

TABLE 6-8
SWMU 15 Step 2: Risk Ratio Screening for Soil, Maximum Detected Concentration
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Surface Soil

Analyte	Maximum Detected Concentration (Qualifier)	Location of Maximum Detection	Frequency of Detection	Industrial Soil RSL	Acceptable Risk Level	Corresponding Hazard Index[a]	Corresponding Cancer Risk[b]	Target Organ/ Critical Effect
Semi-volatile Organic Compounds (mg/kg)								
Benzo(a)anthracene	6.1E+00 J	S15-SS03	4 / 4	3.6E+01	1E-06	NA	2E-07	NA
Benzo(a)pyrene	6.5E+00 J	S15-SS03	4 / 4	1.6E+00	1E-06	NA	4E-06	NA
Benzo(b)fluoranthene	8.7E+00 J	S15-SS03	4 / 4	1.6E+00	1E-06	NA	5E-06	NA
Benzo(k)fluoranthene	3.7E+00 J	S15-SS03	4 / 4	1.6E+00	1E-06	NA	2E-06	NA
Chrysene	6.0E+00	S15-SS03	4 / 4	1.6E+00	1E-06	NA	4E-06	NA
Dibenz(a,h)anthracene	8.6E-01 J	S15-SS03	4 / 4	1.6E+00	1E-06	NA	5E-07	NA
Indeno(1,2,3-cd)pyrene	4.5E+00 J	S15-SS03	4 / 4	1.6E+00	1E-06	NA	3E-06	NA
Metals (mg/kg)								
Arsenic	1.2E+01 J	S15-SS04	4 / 4	1.6E+00	1E-06	NA	7E-06	NA
Arsenic	1.2E+01 J	S15-SS04	4 / 4	2.6E+02	1E+00	0.04	NA	Skin/vascular
Cumulative Corresponding Hazard Index[c]						**0.04**		
Cumulative Corresponding Cancer Risk[d]							**3E-05**	

Total Soil

Analyte	Maximum Detected Concentration (Qualifier)	Location of Maximum Detection	Frequency of Detection	Industrial Soil RSL	Acceptable Risk Level	Corresponding Hazard Index[a]	Corresponding Cancer Risk[b]	Target Organ/ Critical Effect
Semi-volatile Organic Compounds (mg/kg)								
Benzo(a)anthracene	6.1E+00 J	S15-SS03	12 / 12	3.6E+01	1E-06	NA	2E-07	NA
Benzo(a)pyrene	6.5E+00 J	S15-SS03	12 / 12	1.6E+00	1E-06	NA	4E-06	NA
Benzo(b)fluoranthene	8.7E+00 J	S15-SS03	12 / 12	1.6E+00	1E-06	NA	5E-06	NA
Benzo(k)fluoranthene	3.7E+00 J	S15-SS03	12 / 12	1.6E+00	1E-06	NA	2E-06	NA
Chrysene	6.0E+00	S15-SS03	12 / 12	1.6E+00	1E-06	NA	4E-06	NA
Dibenz(a,h)anthracene	8.6E-01 J	S15-SS03	9 / 12	1.6E+00	1E-06	NA	5E-07	NA
Indeno(1,2,3-cd)pyrene	4.5E+00 J	S15-SS03	12 / 12	1.6E+00	1E-06	NA	3E-06	NA
Metals (mg/kg)								
Arsenic	1.3E+01	S15-SS04	12 / 12	1.6E+00	1E-06	NA	8E-06	NA
Arsenic	1.3E+01	S15-SS04	12 / 12	2.6E+02	1E+00	0.05	NA	Skin/vascular
Cumulative Corresponding Hazard Index[c]						**0.05**		
Cumulative Corresponding Cancer Risk[d]							**3E-05**	

[a] Corresponding Hazard Index equals maximum detected concentration divided by the RSL divided by the acceptable risk level.
[b] Corresponding Cancer Risk equals maximum detected concentration divided by the RSL divided by the acceptable risk level.
[c] Cumulative Corresponding Hazard Index equals sum of Corresponding Hazard Indices for each constituent.
[d] Cumulative Corresponding Cancer Risk equals sum of Corresponding Cancer Risks for each constituent.
Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites (USEPA, November 2011). [Online].
Available: http://epa-prgs.ornl.gov/chemicals/index.shtml.
HI = Hazard Index
mg/kg = milligrams per kilogram
NA = Not available/not applicable

TABLE 6-9
SWMU 17 Step 1: Selection of Chemicals of Potential Concern
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

History: Stormwater Drainage System

Sediment

CAS Number	Analyte	Minimum Detected Concentration	Maximum Detected Concentration	Units	Location of Maximum Detection	Frequency of Detection	Range of Detection Limits	Screening Level	Frequency of Exceedance	COPC Flag
92-52-4	1,1'-Biphenyl	5.1E-02 J	5.1E-02 J	MG/KG	S17-SD01	1 / 1	0.027 - 0.027	2.1E+01	0 / 1	No
91-57-6	2-Methylnaphthalene	1.3E-02 J	1.3E-02 J	MG/KG	S17-SD01	1 / 1	0.005 - 0.005	3.7E+02	0 / 1	No
208-96-8	Acenaphthylene	1.4E-02 J	1.4E-02 J	MG/KG	S17-SD01	1 / 1	0.005 - 0.005	3.3E+03	0 / 1	No
120-12-7	Anthracene	2.2E-02 J	2.2E-02 J	MG/KG	S17-SD01	1 / 1	0.005 - 0.005	1.7E+04	0 / 1	No
56-55-3	Benzo(a)anthracene	4.3E-02	4.3E-02	MG/KG	S17-SD01	1 / 1	0.005 - 0.005	2.1E+00	0 / 1	No
50-32-8	Benzo(a)pyrene	4.7E-02	4.7E-02	MG/KG	S17-SD01	1 / 1	0.005 - 0.005	2.1E-01	0 / 1	No
205-99-2	Benzo(b)fluoranthene	6.5E-02	6.5E-02	MG/KG	S17-SD01	1 / 1	0.005 - 0.005	2.1E+00	0 / 1	No
191-24-2	Benzo(g,h,i)perylene	3.8E-02	3.8E-02	MG/KG	S17-SD01	1 / 1	0.005 - 0.005	1.7E+03	0 / 1	No
207-08-9	Benzo(k)fluoranthene	2.5E-02 J	2.5E-02 J	MG/KG	S17-SD01	1 / 1	0.005 - 0.005	2.1E+01	0 / 1	No
218-01-9	Chrysene	5.5E-02	5.5E-02	MG/KG	S17-SD01	1 / 1	0.005 - 0.005	2.1E+02	0 / 1	No
53-70-3	Dibenz(a,h)anthracene	1.3E-02 J	1.3E-02 J	MG/KG	S17-SD01	1 / 1	0.005 - 0.005	2.1E-01	0 / 1	No
206-44-0	Fluoranthene	9.6E-02	9.6E-02	MG/KG	S17-SD01	1 / 1	0.005 - 0.005	2.2E+03	0 / 1	No
86-73-7	Fluorene	1.0E-02 J	1.0E-02 J	MG/KG	S17-SD01	1 / 1	0.005 - 0.005	2.2E+03	0 / 1	No
193-39-5	Indeno(1,2,3-cd)pyrene	3.2E-02	3.2E-02	MG/KG	S17-SD01	1 / 1	0.005 - 0.005	2.1E+00	0 / 1	No
87-86-5	Pentachlorophenol	1.3E+00	1.3E+00	MG/KG	S17-SD01	1 / 1	0.053 - 0.053	2.7E+00	0 / 1	No
85-01-8	Phenanthrene	5.1E-02	5.1E-02	MG/KG	S17-SD01	1 / 1	0.005 - 0.005	1.7E+04	0 / 1	No
129-00-0	Pyrene	7.7E-02	7.7E-02	MG/KG	S17-SD01	1 / 1	0.005 - 0.005	1.7E+03	0 / 1	No
7440-38-2	Arsenic	1.1E+01	1.1E+01	MG/KG	S17-SD01	1 / 1	0.125 - 0.125	1.6E+00	1 / 1	Yes
7440-39-3	Barium	1.1E+02	1.1E+02	MG/KG	S17-SD01	1 / 1	0.0282 - 0.0282	1.9E+04	0 / 1	No
7440-43-9	Cadmium	2.6E-01 J	2.6E-01 J	MG/KG	S17-SD01	1 / 1	0.0313 - 0.0313	8.0E+01	0 / 1	No
7440-47-3	Chromium	2.8E+01	2.8E+01	MG/KG	S17-SD01	1 / 1	0.219 - 0.219	1.5E+05	0 / 1	No
7439-92-1	Lead	2.1E+01	2.1E+01	MG/KG	S17-SD01	1 / 1	0.345 - 0.345	8.0E+02	0 / 1	No
7439-97-6	Mercury	2.3E-02 J	2.3E-02 J	MG/KG	S17-SD01	1 / 1	0.011 - 0.011	3.1E+00	0 / 1	No
7782-49-2	Selenium	2.9E+00 J	2.9E+00 J	MG/KG	S17-SD01	1 / 1	1.06 - 1.06	5.1E+02	0 / 1	No

Surface Soil

CAS Number	Analyte	Minimum Detected Concentration	Minimum Detected Concentration	Units	Location of Maximum Detection	Frequency of Detection	Range of Detection Limits	Screening Level	Frequency of Exceedance	COPC Flag
78-93-3	2-Butanone	5.0E-03 J	5.0E-03 J	MG/KG	S17-SS01	1 / 3	0.004 - 0.005	2.0E+04	0 / 3	No
67-64-1	Acetone	2.6E-02 J	6.7E-02 J	MG/KG	S17-SS02	3 / 3	0.007 - 0.008	6.3E+04	0 / 3	No
92-52-4	1,1'-Biphenyl	5.8E-02	5.8E-02	MG/KG	S17-SS02	1 / 3	0.02 - 0.021	2.1E+01	0 / 3	No
91-57-6	2-Methylnaphthalene	4.9E-02	4.9E-02	MG/KG	S17-SS02	1 / 3	0.004 - 0.004	3.7E+02	0 / 3	No
208-96-8	Acenaphthylene	1.1E-02 J	1.1E-02 J	MG/KG	S17-SS02	1 / 3	0.004 - 0.004	3.3E+03	0 / 3	No
120-12-7	Anthracene	5.0E-03 J	5.0E-03 J	MG/KG	S17-SS02	1 / 3	0.004 - 0.004	1.7E+04	0 / 3	No
56-55-3	Benzo(a)anthracene	1.2E-02 J	1.2E-02 J	MG/KG	S17-SS02	1 / 3	0.004 - 0.004	2.1E+00	0 / 3	No
50-32-8	Benzo(a)pyrene	5.0E-03 J	2.0E-02 J	MG/KG	S17-SS02	2 / 3	0.004 - 0.004	2.1E-01	0 / 3	No
205-99-2	Benzo(b)fluoranthene	5.0E-03 J	2.4E-02	MG/KG	S17-SS02	2 / 3	0.004 - 0.004	2.1E+00	0 / 3	No
191-24-2	Benzo(g,h,i)perylene	6.0E-03 J	2.1E-02 J	MG/KG	S17-SS02	2 / 3	0.004 - 0.004	1.7E+03	0 / 3	No
207-08-9	Benzo(k)fluoranthene	5.0E-03 J	5.0E-03 J	MG/KG	S17-SS01	1 / 3	0.004 - 0.004	2.1E+01	0 / 3	No
218-01-9	Chrysene	5.0E-03 J	1.6E-02 J	MG/KG	S17-SS02	2 / 3	0.004 - 0.004	2.1E+02	0 / 3	No
53-70-3	Dibenz(a,h)anthracene	4.0E-03 J	4.0E-03 J	MG/KG	S17-SS01	1 / 3	0.004 - 0.004	2.1E-01	0 / 3	No
206-44-0	Fluoranthene	6.0E-03 J	2.5E-02	MG/KG	S17-SS02	2 / 3	0.004 - 0.004	2.2E+03	0 / 3	No
193-39-5	Indeno(1,2,3-cd)pyrene	6.0E-03 J	2.0E-02 J	MG/KG	S17-SS02	2 / 3	0.004 - 0.004	2.1E+00	0 / 3	No
85-01-8	Phenanthrene	4.0E-03 J	1.4E-02 J	MG/KG	S17-SS02	2 / 3	0.004 - 0.004	1.7E+04	0 / 3	No
129-00-0	Pyrene	7.0E-03 J	3.0E-02	MG/KG	S17-SS02	2 / 3	0.004 - 0.004	1.7E+03	0 / 3	No
7440-38-2	Arsenic	1.2E+01 J	1.4E+01 J	MG/KG	S17-SS03	3 / 3	0.0958 - 0.099	1.6E+00	3 / 3	Yes
7440-39-3	Barium	9.4E+01 J	2.4E+02 J	MG/KG	S17-SS03	3 / 3	0.0213 - 0.0218	1.9E+04	0 / 3	No
7440-43-9	Cadmium	9.3E-01	1.9E+00 J	MG/KG	S17-SS02	3 / 3	0.0237 - 0.0243	8.0E+01	0 / 3	No
7440-47-3	Chromium	1.9E+01	5.8E+01 J	MG/KG	S17-SS02	3 / 3	0.166 - 0.17	1.5E+05	0 / 3	No
7439-92-1	Lead	1.6E+01	2.0E+01	MG/KG	S17-SS02	3 / 3	0.261 - 0.267	8.0E+02	0 / 3	No
7439-97-6	Mercury	1.1E-02 J	1.1E-02 J	MG/KG	S17-SS02	1 / 3	0.0081 - 0.0087	3.1E+00	0 / 3	No
7782-49-2	Selenium	3.6E+00	3.6E+00	MG/KG	S17-SS03	1 / 3	0.806 - 0.825	5.1E+02	0 / 3	No

TABLE 6-9
SWMU 17 Step 1: Selection of Chemicals of Potential Concern
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

History: Stormwater Drainage System

Total Soil

CAS Number	Analyte	Minimum Detected Concentration	Minimum Detected Concentration	Units	Location of Maximum Detection	Frequency of Detection	Range of Detection Limits	Screening Level	Frequency of Exceedance	COPC Flag
78-93-3	2-Butanone	5.0E-03 J	5.0E-03 J	MG/KG	S17-SS01	1 / 10	0.004 - 0.005	2.0E+04	0 / 10	No
67-64-1	Acetone	8.0E-03 J	6.7E-02 J	MG/KG	S17-SS02	10 / 10	0.007 - 0.009	6.3E+04	0 / 10	No
75-15-0	Carbon disulfide	1.0E-03 J	1.0E-03 J	MG/KG	S17-SS01	1 / 10	0.001 - 0.001	3.7E+02	0 / 10	No
127-18-4	Tetrachloroethene	6.0E-03	6.0E-03	MG/KG	S17-SS02	1 / 10	0.001 - 0.001	4.1E+01	0 / 10	No
92-52-4	1,1'-Biphenyl	5.8E-02	5.8E-02	MG/KG	S17-SS02	1 / 10	0.018 - 0.022	2.1E+01	0 / 10	No
91-57-6	2-Methylnaphthalene	4.9E-02	4.9E-02	MG/KG	S17-SS02	1 / 10	0.004 - 0.004	3.7E+02	0 / 10	No
208-96-8	Acenaphthylene	1.1E-02 J	1.1E-02 J	MG/KG	S17-SS02	1 / 10	0.004 - 0.004	3.3E+03	0 / 10	No
120-12-7	Anthracene	5.0E-03 J	5.0E-03 J	MG/KG	S17-SS02	1 / 10	0.004 - 0.004	1.7E+04	0 / 10	No
56-55-3	Benzo(a)anthracene	1.2E-02 J	1.2E-02 J	MG/KG	S17-SS02	1 / 10	0.004 - 0.004	2.1E+00	0 / 10	No
50-32-8	Benzo(a)pyrene	5.0E-03 J	2.0E-02 J	MG/KG	S17-SS02	2 / 10	0.004 - 0.004	2.1E-01	0 / 10	No
205-99-2	Benzo(b)fluoranthene	5.0E-03 J	2.4E-02	MG/KG	S17-SS02	2 / 10	0.004 - 0.004	2.1E+00	0 / 10	No
191-24-2	Benzo(g,h,i)perylene	6.0E-03 J	2.1E-02 J	MG/KG	S17-SS02	2 / 10	0.004 - 0.004	1.7E+03	0 / 10	No
207-08-9	Benzo(k)fluoranthene	5.0E-03 J	5.0E-03 J	MG/KG	S17-SS01	1 / 10	0.004 - 0.004	2.1E+01	0 / 10	No
218-01-9	Chrysene	5.0E-03 J	1.6E-02 J	MG/KG	S17-SS02	2 / 10	0.004 - 0.004	2.1E+02	0 / 10	No
53-70-3	Dibenz(a,h)anthracene	4.0E-03 J	4.0E-03 J	MG/KG	S17-SS01	1 / 10	0.004 - 0.004	2.1E-01	0 / 10	No
206-44-0	Fluoranthene	6.0E-03 J	2.5E-02	MG/KG	S17-SS02	3 / 10	0.004 - 0.004	2.2E+03	0 / 10	No
193-39-5	Indeno(1,2,3-cd)pyrene	6.0E-03 J	2.0E-02 J	MG/KG	S17-SS02	2 / 10	0.004 - 0.004	2.1E+00	0 / 10	No
98-95-3	Nitrobenzene	1.1E-01	1.1E-01	MG/KG	S17-SS02	1 / 10	0.018 - 0.022	2.4E+01	0 / 10	No
85-01-8	Phenanthrene	4.0E-03 J	1.4E-02 J	MG/KG	S17-SS02	5 / 10	0.004 - 0.004	1.7E+04	0 / 10	No
129-00-0	Pyrene	7.0E-03 J	3.0E-02	MG/KG	S17-SS02	3 / 10	0.004 - 0.004	1.7E+03	0 / 10	No
7440-38-2	Arsenic	6.6E+00	1.4E+01	MG/KG	S17-SS03	10 / 10	0.0841 - 0.104	1.6E+00	10 / 10	Yes
7440-39-3	Barium	4.1E+01 J	2.4E+02 J	MG/KG	S17-SS03	10 / 10	0.0189 - 0.0233	1.9E+04	0 / 10	No
7440-43-9	Cadmium	2.4E-01 J	1.9E+00 J	MG/KG	S17-SS02	10 / 10	0.021 - 0.0259	8.0E+01	0 / 10	No
7440-47-3	Chromium	4.2E+00	5.8E+01 J	MG/KG	S17-SS02	10 / 10	0.147 - 0.182	1.5E+05	0 / 10	No
7439-92-1	Lead	2.7E+00	2.0E+01	MG/KG	S17-SS02	10 / 10	0.231 - 0.285	8.0E+02	0 / 10	No
7439-97-6	Mercury	1.1E-02 J	1.7E-02 J	MG/KG	S17-SS01	5 / 10	0.0071 - 0.009	3.1E+00	0 / 10	No
7782-49-2	Selenium	3.2E+00	3.6E+00	MG/KG	S17-SS03	3 / 10	0.713 - 0.882	5.1E+02	0 / 10	No

Note:
J = Estimated Value
Screening Level = USEPA Industrial Regional Screening Level (RSL) based on $1x10^{-6}$ or HQ = 0.1 (November 2011).
FOE = Frequency of Exceedance
NA = Not applicable/not available
RSL value for acenaphthene used as surrogate for acenaphthylene
RSL value for pyrene used as surrogate for benzo(g,h,i)perylene
RSL value for anthracene used as surrogate for phenanthrene
RSL value for chromium III used as surrogate for chromium

TABLE 6-10

SWMU 17 Step 2: Risk Ratio Screening for Soil, Maximum Detected Concentration

Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Sediment

Analyte	Maximum Detected Concentration (Qualifier)	Location of Maximum Detection	Frequency of Detection	Industrial Soil RSL	Acceptable Risk Level	Corresponding Hazard Index[a]	Corresponding Cancer Risk[b]	Target Organ/ Critical Effect
Metals (mg/kg)								
Arsenic	1.1E+01	S17-SD01	1 / 1	1.6E+00	1E-06	NA	7E-06	NA
Arsenic	1.1E+01	S17-SD01	1 / 1	2.6E+02	1E+00	0.04	NA	Skin/vascular
Cumulative Corresponding Hazard Index[c]						**0.04**		
Cumulative Corresponding Cancer Risk[d]							**7E-06**	

Surface and Total Soil

Analyte	Maximum Detected Concentration (Qualifier)	Location of Maximum Detection	Frequency of Detection	Industrial Soil RSL	Acceptable Risk Level	Corresponding Hazard Index[a]	Corresponding Cancer Risk[b]	Target Organ/ Critical Effect
Metals (mg/kg)								
Arsenic	1.4E+01 J	S17-SS03	3 / 3	1.6E+00	1E-06	NA	9E-06	NA
Arsenic	1.4E+01 J	S17-SS03	3 / 3	2.6E+02	1E+00	0.05	NA	Skin/vascular
Cumulative Corresponding Hazard Index[c]						**0.05**		
Cumulative Corresponding Cancer Risk[d]							**9E-06**	

[a] Corresponding Hazard Index equals maximum detected concentration divided by the RSL divided by the acceptable risk level.

[b] Corresponding Cancer Risk equals maximum detected concentration divided by the RSL divided by the acceptable risk level.

[c] Cumulative Corresponding Hazard Index equals sum of Corresponding Hazard Indices for each constituent.

[d] Cumulative Corresponding Cancer Risk equals sum of Corresponding Cancer Risks for each constituent.

Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites (USEPA, November 2011). [Online].
Available: http://epa-prgs.ornl.gov/chemicals/index.shtml.

HI = Hazard Index

mg/kg = milligrams per kilogram

NA = Not available/not applicable

TABLE 6-11
SWMU 18 Step 1: Selection of Chemicals of Potential Concern
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

History: Drainage Ditch to Big Thief Creek

Sediment

CAS Number	Analyte	Minimum Detected Concentration	Maximum Detected Concentration	Units	Location of Maximum Detection	Frequency of Detection	Range of Detection Limits	Screening Level	Frequency of Exceedance	COPC Flag
78-93-3	2-Butanone	7.0E-03 J	7.0E-03 J	MG/KG	S18-SD02	1 / 5	0.004 - 0.007	2.0E+04	0 / 5	No
67-64-1	Acetone	1.7E-02 J	2.7E-02 J	MG/KG	S18-SD02	2 / 5	0.008 - 0.012	6.3E+04	0 / 5	No
98-82-8	Isopropylbenzene	3.0E-03 J	3.0E-03 J	MG/KG	S18-SD01	1 / 5	0.001 - 0.002	2.7E+02	0 / 5	No
75-09-2	Methylene chloride	4.0E-03 J	4.0E-03 J	MG/KG	S18-SD04	1 / 5	0.002 - 0.003	5.3E+01	0 / 5	No
92-52-4	1,1'-Biphenyl	2.2E-02 J	2.7E+00	MG/KG	S18-SD02	5 / 5	0.019 - 0.26	2.1E+01	0 / 5	No
91-57-6	2-Methylnaphthalene	6.0E-03 J	6.4E-02 J	MG/KG	S18-SD01	4 / 5	0.004 - 0.052	3.7E+02	0 / 5	No
208-96-8	Acenaphthylene	7.0E-03 J	7.0E-02 J	MG/KG	S18-SD01	4 / 5	0.004 - 0.052	3.3E+03	0 / 5	No
120-12-7	Anthracene	8.0E-03 J	2.7E-01	MG/KG	S18-SD01	4 / 5	0.004 - 0.052	1.7E+04	0 / 5	No
56-55-3	Benzo(a)anthracene	2.8E-02	7.2E-01	MG/KG	S18-SD01	5 / 5	0.004 - 0.052	2.1E+00	0 / 5	No
50-32-8	Benzo(a)pyrene	3.1E-02	7.5E-01	MG/KG	S18-SD01	5 / 5	0.004 - 0.052	2.1E-01	1 / 5	Yes
205-99-2	Benzo(b)fluoranthene	4.3E-02	9.3E-01	MG/KG	S18-SD01	5 / 5	0.004 - 0.052	2.1E+00	0 / 5	No
191-24-2	Benzo(g,h,i)perylene	2.8E-02	5.6E-01	MG/KG	S18-SD01	5 / 5	0.004 - 0.052	1.7E+03	0 / 5	No
207-08-9	Benzo(k)fluoranthene	1.9E-02 J	5.5E-01	MG/KG	S18-SD01	5 / 5	0.004 - 0.052	2.1E+01	0 / 5	No
218-01-9	Chrysene	3.2E-02	8.5E-01 J	MG/KG	S18-SD01	5 / 5	0.004 - 0.052	2.1E+02	0 / 5	No
53-70-3	Dibenz(a,h)anthracene	1.4E-02 J	1.3E-01 J	MG/KG	S18-SD01	3 / 5	0.004 - 0.052	2.1E-01	0 / 5	No
206-44-0	Fluoranthene	5.7E-02	2.2E+00	MG/KG	S18-SD01	5 / 5	0.004 - 0.052	2.2E+03	0 / 5	No
86-73-7	Fluorene	7.0E-03 J	5.5E-01	MG/KG	S18-SD01	2 / 5	0.004 - 0.052	2.2E+03	0 / 5	No
193-39-5	Indeno(1,2,3-cd)pyrene	2.8E-02	5.1E-01	MG/KG	S18-SD01	5 / 5	0.004 - 0.052	2.1E+00	0 / 5	No
85-01-8	Phenanthrene	2.2E-02 J	1.1E+00	MG/KG	S18-SD01	5 / 5	0.004 - 0.052	1.7E+04	0 / 5	No
129-00-0	Pyrene	5.1E-02	1.6E+00 J	MG/KG	S18-SD01	5 / 5	0.004 - 0.052	1.7E+03	0 / 5	No
7440-38-2	Arsenic	6.5E+00 J	1.6E+01	MG/KG	S18-SD04	5 / 5	0.0932 - 0.126	1.6E+00	5 / 5	Yes
7440-39-3	Barium	4.2E+01	1.6E+02	MG/KG	S18-SD05	5 / 5	0.021 - 0.0283	1.9E+04	0 / 5	No
7440-43-9	Cadmium	8.2E-02 J	7.1E-01 J	MG/KG	S18-SD01	5 / 5	0.0233 - 0.0314	8.0E+01	0 / 5	No
7440-47-3	Chromium	1.5E+01	4.7E+01 J	MG/KG	S18-SD01	5 / 5	0.163 - 0.22	1.5E+05	0 / 5	No
7439-92-1	Lead	8.9E+00	3.3E+01 J	MG/KG	S18-SD01	5 / 5	0.256 - 0.345	8.0E+02	0 / 5	No
7439-97-6	Mercury	1.4E-02 J	2.2E-02 J	MG/KG	S18-SD01	3 / 5	0.0079 - 0.0105	3.1E+00	0 / 5	No
7782-49-2	Selenium	2.0E+00 J	4.4E+00	MG/KG	S18-SD04	4 / 5	0.793 - 1.07	5.1E+02	0 / 5	No

Note:
J = Estimated Value
Screening Level = USEPA Industrial Regional Screening Level (RSL) based on $1x10^{-6}$ or HQ = 0.1 (November 2011).
FOE = Frequency of Exceedance
NA = Not applicable/not available
RSL value for acenaphthene used as surrogate for acenaphthylene
RSL value for pyrene used as surrogate for benzo(g,h,i)perylene
RSL value for anthracene used as surrogate for phenanthrene
RSL value for chromium III used as surrogate for chromium

TABLE 6-12

SWMU 18 Step 2: Risk Ratio Screening for Soil, Maximum Detected Concentration

Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Sediment

Analyte	Maximum Detected Concentration (Qualifier)	Location of Maximum Detection	Frequency of Detection	Industrial Soil RSL	Acceptable Risk Level	Corresponding Hazard Index[a]	Corresponding Cancer Risk[b]	Target Organ/ Critical Effect
Semi-volatile Organic Compounds (mg/kg)								
Benzo(a)anthracene	7.2E-01	S18-SD01	5 / 5	3.6E+01	1E-06	NA	2E-08	NA
Benzo(a)pyrene	7.5E-01	S18-SD01	5 / 5	1.6E+00	1E-06	NA	5E-07	NA
Benzo(b)fluoranthene	9.3E-01	S18-SD01	5 / 5	1.6E+00	1E-06	NA	6E-07	NA
Benzo(k)fluoranthene	5.5E-01	S18-SD01	5 / 5	1.6E+00	1E-06	NA	3E-07	NA
Chrysene	8.5E-01 J	S18-SD01	5 / 5	1.6E+00	1E-06	NA	5E-07	NA
Dibenz(a,h)anthracene	1.3E-01 J	S18-SD01	3 / 5	1.6E+00	1E-06	NA	8E-08	NA
Indeno(1,2,3-cd)pyrene	5.1E-01	S18-SD01	5 / 5	1.6E+00	1E-06	NA	3E-07	NA
Metals (mg/kg)								
Arsenic	1.6E+01	S18-SD04	5 / 5	1.6E+00	1E-06	NA	1E-05	NA
Arsenic	1.6E+01	S18-SD04	5 / 5	2.6E+02	1E+00	0.06	NA	Skin/vascular
Cumulative Corresponding Hazard Index[c]						**0.06**		
Cumulative Corresponding Cancer Risk[d]							**1E-05**	

[a] Corresponding Hazard Index equals maximum detected concentration divided by the RSL divided by the acceptable risk level.

[b] Corresponding Cancer Risk equals maximum detected concentration divided by the RSL divided by the acceptable risk level.

[c] Cumulative Corresponding Hazard Index equals sum of Corresponding Hazard Indices for each constituent.

[d] Cumulative Corresponding Cancer Risk equals sum of Corresponding Cancer Risks for each constituent.

Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites (USEPA, November 2011). [Online].
Available: http://epa-prgs.ornl.gov/chemicals/index.shtml.

HI = Hazard Index

mg/kg = milligrams per kilogram

NA = Not available/not applicable

TABLE 6-13
SWMU 19 Step 1: Selection of Chemicals of Potential Concern
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

History:	Drainage Ditch to North

Surface Soil

CAS Number	Analyte	Minimum Detected Concentration	Maximum Detected Concentration	Units	Location of Maximum Detection	Frequency of Detection	Range of Detection Limits	Screening Level	Frequency of Exceedance	COPC Flag
95-63-6	1,2,4-Trimethylbenzene	2.0E-03 J	2.0E-03 J	MG/KG	S19-SS02	1 / 2	0.001 - 0.001	2.6E+01	0 / 2	No
78-93-3	2-Butanone	5.0E-03 J	2.2E-02	MG/KG	S19-SS02	2 / 2	0.004 - 0.004	2.0E+04	0 / 2	No
67-64-1	Acetone	3.8E-02 J	1.3E-01 J	MG/KG	S19-SS02	2 / 2	0.007 - 0.007	6.3E+04	0 / 2	No
92-52-4	1,1'-Biphenyl	6.6E-02	6.6E-02	MG/KG	S19-SS02	1 / 2	0.02 - 0.02	2.1E+01	0 / 2	No
91-57-6	2-Methylnaphthalene	8.0E-03 J	8.0E-03 J	MG/KG	S19-SS01, S19-SS02	2 / 2	0.004 - 0.004	3.7E+02	0 / 2	No
83-32-9	Acenaphthene	5.0E-03 J	5.0E-03 J	MG/KG	S19-SS01	1 / 2	0.004 - 0.004	3.3E+03	0 / 2	No
120-12-7	Anthracene	5.0E-03 J	8.0E-03 J	MG/KG	S19-SS02	2 / 2	0.004 - 0.004	1.7E+04	0 / 2	No
56-55-3	Benzo(a)anthracene	8.0E-03 J	2.0E-02 J	MG/KG	S19-SS02	2 / 2	0.004 - 0.004	2.1E+00	0 / 2	No
50-32-8	Benzo(a)pyrene	1.7E-02 J	3.5E-02	MG/KG	S19-SS02	2 / 2	0.004 - 0.004	2.1E-01	0 / 2	No
205-99-2	Benzo(b)fluoranthene	2.1E-02	5.0E-02	MG/KG	S19-SS02	2 / 2	0.004 - 0.004	2.1E+00	0 / 2	No
191-24-2	Benzo(g,h,i)perylene	1.5E-02 J	2.6E-02	MG/KG	S19-SS02	2 / 2	0.004 - 0.004	1.7E+03	0 / 2	No
207-08-9	Benzo(k)fluoranthene	1.4E-02 J	3.4E-02	MG/KG	S19-SS02	2 / 2	0.004 - 0.004	2.1E+01	0 / 2	No
117-81-7	Bis(2-ethylhexyl)phthalate	8.5E-02 J	8.5E-02 J	MG/KG	S19-SS01	1 / 2	0.079 - 0.081	1.2E+02	0 / 2	No
218-01-9	Chrysene	1.5E-02 J	3.0E-02	MG/KG	S19-SS02	2 / 2	0.004 - 0.004	2.1E+02	0 / 2	No
53-70-3	Dibenz(a,h)anthracene	9.0E-03 J	1.2E-02 J	MG/KG	S19-SS02	2 / 2	0.004 - 0.004	2.1E-01	0 / 2	No
206-44-0	Fluoranthene	1.9E-02 J	2.8E-02	MG/KG	S19-SS02	2 / 2	0.004 - 0.004	2.2E+03	0 / 2	No
86-73-7	Fluorene	6.0E-03 J	6.0E-03 J	MG/KG	S19-SS01	1 / 2	0.004 - 0.004	2.2E+03	0 / 2	No
193-39-5	Indeno(1,2,3-cd)pyrene	1.3E-02 J	2.2E-02	MG/KG	S19-SS02	2 / 2	0.004 - 0.004	2.1E+00	0 / 2	No
85-01-8	Phenanthrene	2.2E-02	2.2E-02	MG/KG	S19-SS01, S19-SS02	2 / 2	0.004 - 0.004	1.7E+04	0 / 2	No
108-95-2	Phenol	3.4E-02 J	3.4E-02 J	MG/KG	S19-SS02	1 / 2	0.02 - 0.02	1.8E+04	0 / 2	No
129-00-0	Pyrene	1.8E-02 J	2.8E-02	MG/KG	S19-SS02	2 / 2	0.004 - 0.004	1.7E+03	0 / 2	No
7440-38-2	Arsenic	1.1E+01	1.3E+01	MG/KG	S19-SS01	2 / 2	0.0925 - 0.0948	1.6E+00	2 / 2	Yes
7440-39-3	Barium	8.3E+01 J	1.0E+02 J	MG/KG	S19-SS01	2 / 2	0.0214 - 0.0218	1.9E+04	0 / 2	No
7440-43-9	Cadmium	8.9E-01	9.7E-01	MG/KG	S19-SS02	2 / 2	0.0238 - 0.0242	8.0E+01	0 / 2	No
7440-47-3	Chromium	1.8E+01	2.7E+01	MG/KG	S19-SS01	2 / 2	0.167 - 0.169	1.5E+05	0 / 2	No
7439-92-1	Lead	1.3E+01	1.4E+01 J	MG/KG	S19-SS02	2 / 2	0.262 - 0.266	8.0E+02	0 / 2	No
7439-97-6	Mercury	1.5E-02 J	1.5E-02 J	MG/KG	S19-SS02	1 / 2	0.0078 - 0.0085	3.1E+00	0 / 2	No

Total Soil

CAS Number	Analyte	Minimum Detected Concentration	Maximum Detected Concentration	Units	Location of Maximum Detection	Frequency of Detection	Range of Detection Limits	Screening Level	Frequency of Exceedance	COPC Flag
95-63-6	1,2,4-Trimethylbenzene	2.0E-03 J	2.0E-03 J	MG/KG	S19-SS02	1 / 6	0.0009 - 0.001	2.6E+01	0 / 6	No
78-93-3	2-Butanone	5.0E-03 J	2.2E-02	MG/KG	S19-SS02	2 / 6	0.004 - 0.005	2.0E+04	0 / 6	No
67-64-1	Acetone	1.5E-02 J	1.3E-01 J	MG/KG	S19-SS02	6 / 6	0.006 - 0.009	6.3E+04	0 / 6	No
100-41-4	Ethylbenzene	9.0E-04 J	9.0E-04 J	MG/KG	S19-SS02	1 / 6	0.0009 - 0.001	2.7E+01	0 / 6	No
108-87-2	Methylcyclohexane	5.0E-03 J	5.0E-03 J	MG/KG	S19-SS02	1 / 6	0.0009 - 0.001	1.4E+02	0 / 6	No
92-52-4	1,1'-Biphenyl	6.6E-02	6.6E-02	MG/KG	S19-SS02	1 / 6	0.017 - 0.021	2.1E+01	0 / 6	No
91-57-6	2-Methylnaphthalene	8.0E-03 J	8.0E-03 J	MG/KG	S19-SS01, S19-SS02	2 / 6	0.003 - 0.004	3.7E+02	0 / 6	No
83-32-9	Acenaphthene	5.0E-03 J	5.0E-03 J	MG/KG	S19-SS01	1 / 6	0.003 - 0.004	3.3E+03	0 / 6	No
120-12-7	Anthracene	5.0E-03 J	8.0E-03 J	MG/KG	S19-SS02	2 / 6	0.003 - 0.004	1.7E+04	0 / 6	No
56-55-3	Benzo(a)anthracene	8.0E-03 J	2.0E-02 J	MG/KG	S19-SS02	2 / 6	0.003 - 0.004	2.1E+00	0 / 6	No
50-32-8	Benzo(a)pyrene	5.0E-03 J	3.5E-02	MG/KG	S19-SS02	5 / 6	0.003 - 0.004	2.1E-01	0 / 6	No
205-99-2	Benzo(b)fluoranthene	6.0E-03 J	5.0E-02	MG/KG	S19-SS02	5 / 6	0.003 - 0.004	2.1E+00	0 / 6	No
191-24-2	Benzo(g,h,i)perylene	4.0E-03 J	2.6E-02	MG/KG	S19-SS02	6 / 6	0.003 - 0.004	1.7E+03	0 / 6	No
207-08-9	Benzo(k)fluoranthene	5.0E-03 J	3.4E-02	MG/KG	S19-SS02	5 / 6	0.003 - 0.004	2.1E+01	0 / 6	No
117-81-7	Bis(2-ethylhexyl)phthalate	7.3E-02 J	1.6E-01 J	MG/KG	S19-SS01	3 / 6	0.07 - 0.085	1.2E+02	0 / 6	No
218-01-9	Chrysene	4.0E-03 J	3.0E-02	MG/KG	S19-SS02	5 / 6	0.003 - 0.004	2.1E+02	0 / 6	No
53-70-3	Dibenz(a,h)anthracene	5.0E-03 J	1.2E-02 J	MG/KG	S19-SS02	6 / 6	0.003 - 0.004	2.1E-01	0 / 6	No
206-44-0	Fluoranthene	6.0E-03 J	2.8E-02	MG/KG	S19-SS02	3 / 6	0.003 - 0.004	2.2E+03	0 / 6	No
86-73-7	Fluorene	6.0E-03 J	6.0E-03 J	MG/KG	S19-SS01	1 / 6	0.003 - 0.004	2.2E+03	0 / 6	No
193-39-5	Indeno(1,2,3-cd)pyrene	4.0E-03 J	2.2E-02	MG/KG	S19-SS02	6 / 6	0.003 - 0.004	2.1E+00	0 / 6	No
85-01-8	Phenanthrene	5.0E-03 J	2.2E-02	MG/KG	S19-SS01, S19-SS02	5 / 6	0.003 - 0.004	1.7E+04	0 / 6	No
108-95-2	Phenol	3.4E-02 J	3.4E-02 J	MG/KG	S19-SS02	1 / 6	0.017 - 0.021	1.8E+04	0 / 6	No
129-00-0	Pyrene	4.0E-03 J	2.8E-02	MG/KG	S19-SS02	4 / 6	0.003 - 0.004	1.7E+03	0 / 6	No
7440-38-2	Arsenic	4.5E+00	1.3E+01	MG/KG	S19-SS01	6 / 6	0.0833 - 0.0986	1.6E+00	6 / 6	Yes
7440-39-3	Barium	5.0E+01 J	1.0E+02 J	MG/KG	S19-SS01	6 / 6	0.0183 - 0.0226	1.9E+04	0 / 6	No
7440-43-9	Cadmium	5.1E-01	9.7E-01	MG/KG	S19-SS02	6 / 6	0.0204 - 0.0251	8.0E+01	0 / 6	No
7440-47-3	Chromium	4.8E+00	2.7E+01	MG/KG	S19-SS01	6 / 6	0.142 - 0.176	1.5E+05	0 / 6	No
7439-92-1	Lead	3.8E+00	1.4E+01 J	MG/KG	S19-SS02	6 / 6	0.224 - 0.277	8.0E+02	0 / 6	No
7439-97-6	Mercury	1.5E-02 J	1.5E-02 J	MG/KG	S19-SS02	1 / 6	0.007 - 0.0089	3.1E+00	0 / 6	No

Note:
J = Estimated Value
Screening Level = USEPA Industrial Regional Screening Level (RSL) based on $1x10^{-6}$ or HQ = 0.1 (November 2011).
FOE = Frequency of Exceedance
NA = Not applicable/not available
Soil saturation value for n-hexane used as surrogate for methylcylcohexane
RSL value for pyrene used as surrogate for benzo(g,h,i)perylene
RSL value for anthracene used as surrogate for phenanthrene
RSL value for chromium III used as surrogate for chromium

TABLE 6-14

SWMU 19 Step 2: Risk Ratio Screening for Soil, Maximum Detected Concentration

Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Surface and Total Soil

Analyte	Maximum Detected Concentration (Qualifier)	Location of Maximum Detection	Frequency of Detection	Industrial Soil RSL	Acceptable Risk Level	Corresponding Hazard Index[a]	Corresponding Cancer Risk[b]	Target Organ/ Critical Effect
Metals (mg/kg)								
Arsenic	1.3E+01	S19-SS01	2 / 2	1.6E+00	1E-06	NA	8E-06	NA
Arsenic	1.3E+01	S19-SS01	2 / 2	2.6E+02	1E+00	0.05	NA	Skin/vascular
Cumulative Corresponding Hazard Index[c]						**0.05**		
Cumulative Corresponding Cancer Risk[d]							**8E-06**	

[a] Corresponding Hazard Index equals maximum detected concentration divided by the RSL divided by the acceptable risk level.

[b] Corresponding Cancer Risk equals maximum detected concentration divided by the RSL divided by the acceptable risk level.

[c] Cumulative Corresponding Hazard Index equals sum of Corresponding Hazard Indices for each constituent.

[d] Cumulative Corresponding Cancer Risk equals sum of Corresponding Cancer Risks for each constituent.

Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites (USEPA, November 2011). [Online].
Available: http://epa-prgs.ornl.gov/chemicals/index.shtml.

HI = Hazard Index

mg/kg = milligrams per kilogram

NA = Not available/not applicable

TABLE 6-15
SWMU 24 Step 1: Selection of Chemicals of Potential Concern
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

History:	Process Sewer Line

Surface Soil

CAS Number	Analyte	Minimum Detected Concentration	Maximum Detected Concentration	Units	Location of Maximum Detection	Frequency of Detection	Range of Detection Limits	Screening Level	Frequency of Exceedance	COPC Flag
78-93-3	2-Butanone	1.0E-02 J	2.1E-02	MG/KG	S24-SS05	2 / 8	0.003 - 0.005	2.0E+04	0 / 8	No
67-64-1	Acetone	1.1E-02 J	1.8E-01 J	MG/KG	S24-SS05	7 / 8	0.006 - 0.008	6.3E+04	0 / 8	No
71-43-2	Benzene	2.0E-03 J	2.0E-03 J	MG/KG	S24-SS06	1 / 8	0.0004 - 0.0006	5.4E+00	0 / 8	No
75-15-0	Carbon disulfide	2.0E-03 J	8.0E-03	MG/KG	S24-SS02	4 / 8	0.0009 - 0.001	3.7E+02	0 / 8	No
110-82-7	Cyclohexane	5.0E-03 J	5.0E-03 J	MG/KG	S24-SS06	1 / 8	0.0009 - 0.001	1.2E+02	0 / 8	No
100-41-4	Ethylbenzene	1.0E-03 J	1.3E-02 J	MG/KG	S24-SS04	2 / 8	0.0009 - 0.001	2.7E+01	0 / 8	No
98-82-8	Isopropylbenzene	2.0E-03 J	2.0E-03 J	MG/KG	S24-SS04	1 / 8	0.0009 - 0.001	2.7E+02	0 / 8	No
179601-23-1	m,p-Xylene	2.0E-03 J	2.0E-03 J	MG/KG	S24-SS04, S24-SS06	2 / 8	0.0009 - 0.001	2.5E+02	0 / 8	No
108-87-2	Methylcyclohexane	6.0E-03	6.0E-03	MG/KG	S24-SS06	1 / 8	0.0009 - 0.001	1.4E+02	0 / 8	No
91-20-3	Naphthalene	3.0E-03 J	3.0E-03 J	MG/KG	S24-SS04	1 / 8	0.0009 - 0.001	1.8E+01	0 / 8	No
127-18-4	Tetrachloroethene	4.0E-03 J	4.0E-03 J	MG/KG	S24-SS07	1 / 8	0.0009 - 0.001	4.1E+01	0 / 8	No
108-88-3	Toluene	5.0E-03 J	5.0E-03 J	MG/KG	S24-SS06	1 / 8	0.0009 - 0.001	8.2E+02	0 / 8	No
92-52-4	1,1'-Biphenyl	2.9E-02 J	3.6E+00	MG/KG	S24-SS04	4 / 8	0.018 - 0.2	2.1E+01	0 / 8	No
91-57-6	2-Methylnaphthalene	5.0E-03 J	3.5E+00	MG/KG	S24-SS01	7 / 8	0.004 - 0.039	3.7E+02	0 / 8	No
83-32-9	Acenaphthene	5.0E-03 J	7.9E-01	MG/KG	S24-SS01	7 / 8	0.004 - 0.039	3.3E+03	0 / 8	No
208-96-8	Acenaphthylene	5.0E-03 J	3.6E-01	MG/KG	S24-SS01	7 / 8	0.004 - 0.039	3.3E+03	0 / 8	No
120-12-7	Anthracene	9.0E-03 J	7.8E-01	MG/KG	S24-SS01	7 / 8	0.004 - 0.039	1.7E+04	0 / 8	No
56-55-3	Benzo(a)anthracene	6.0E-03 J	4.2E+00	MG/KG	S24-SS01	8 / 8	0.004 - 0.039	2.1E+00	1 / 8	Yes
50-32-8	Benzo(a)pyrene	9.0E-03 J	4.1E+00	MG/KG	S24-SS02	8 / 8	0.004 - 0.039	2.1E-01	5 / 8	Yes
205-99-2	Benzo(b)fluoranthene	1.6E-02 J	7.4E+00	MG/KG	S24-SS01	8 / 8	0.004 - 0.039	2.1E+00	2 / 8	Yes
191-24-2	Benzo(g,h,i)perylene	1.6E-02 J	3.9E+00	MG/KG	S24-SS02	8 / 8	0.004 - 0.039	1.7E+03	0 / 8	No
207-08-9	Benzo(k)fluoranthene	5.0E-03 J	2.5E+00	MG/KG	S24-SS02	8 / 8	0.004 - 0.039	2.1E+01	0 / 8	No
117-81-7	Bis(2-ethylhexyl)phthalate	1.3E-01 J	1.3E-01 J	MG/KG	S24-SS01	1 / 8	0.072 - 0.78	1.2E+02	0 / 8	No
86-74-8	Carbazole	2.5E-02 J	2.8E-01	MG/KG	S24-SS01	4 / 8	0.018 - 0.2	NA	--	NA
218-01-9	Chrysene	9.0E-03 J	4.5E+00	MG/KG	S24-SS01	8 / 8	0.004 - 0.039	2.1E+02	0 / 8	No
53-70-3	Dibenz(a,h)anthracene	1.0E-02 J	9.9E-01	MG/KG	S24-SS01	7 / 8	0.004 - 0.039	2.1E-01	2 / 8	Yes
132-64-9	Dibenzofuran	2.4E-02 J	5.8E+00	MG/KG	S24-SS01	5 / 8	0.02 - 0.2	1.0E+02	0 / 8	No
206-44-0	Fluoranthene	1.1E-02 J	1.1E+01	MG/KG	S24-SS01	8 / 8	0.004 - 0.039	2.2E+03	0 / 8	No
86-73-7	Fluorene	8.0E-03 J	3.3E-01	MG/KG	S24-SS04	6 / 8	0.004 - 0.039	2.2E+03	0 / 8	No
193-39-5	Indeno(1,2,3-cd)pyrene	1.2E-02 J	3.8E+00	MG/KG	S24-SS02	8 / 8	0.004 - 0.039	2.1E+00	2 / 8	Yes
85-01-8	Phenanthrene	9.0E-03 J	5.2E+00	MG/KG	S24-SS01	8 / 8	0.004 - 0.039	1.7E+04	0 / 8	No
108-95-2	Phenol	6.5E-02	6.5E-02	MG/KG	S24-SS01	1 / 8	0.018 - 0.2	1.8E+04	0 / 8	No
129-00-0	Pyrene	1.2E-02 J	1.1E+01	MG/KG	S24-SS01	8 / 8	0.004 - 0.039	1.7E+03	0 / 8	No
7440-38-2	Arsenic	2.2E+00	1.6E+01	MG/KG	S24-SS07	8 / 8	0.0847 - 0.0994	1.6E+00	8 / 8	Yes
7440-39-3	Barium	8.2E+01	7.4E+02	MG/KG	S24-SS02	8 / 8	0.0191 - 0.0421	1.9E+04	0 / 8	No
7440-43-9	Cadmium	4.0E-01 J	1.6E+00	MG/KG	S24-SS08	8 / 8	0.0212 - 0.0244	8.0E+01	0 / 8	No
7440-47-3	Chromium	1.8E+01	2.7E+01	MG/KG	S24-SS07	8 / 8	0.148 - 0.171	1.5E+05	0 / 8	No
7439-92-1	Lead	6.4E+00	2.2E+01	MG/KG	S24-SS05	8 / 8	0.233 - 0.268	8.0E+02	0 / 8	No
7439-97-6	Mercury	1.4E-02 J	9.2E-02 J	MG/KG	S24-SS03	6 / 8	0.0073 - 0.0086	3.1E+00	0 / 8	No
7782-49-2	Selenium	2.0E+00 J	5.0E+00	MG/KG	S24-SS01	7 / 8	0.72 - 0.829	5.1E+02	0 / 8	No

TABLE 6-15
SWMU 24 Step 1: Selection of Chemicals of Potential Concern
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

History:	Process Sewer Line

Total Soil

CAS Number	Analyte	Minimum Detected Concentration	Maximum Detected Concentration	Units	Location of Maximum Detection	Frequency of Detection	Range of Detection Limits	Screening Level	Frequency of Exceedance	COPC Flag
71-55-6	1,1,1-Trichloroethane	2.0E-03 J	2.0E-03 J	MG/KG	S24-SS02	1 / 24	0.0009 - 0.001	6.4E+02	0 / 24	No
75-34-3	1,1-Dichloroethane	1.0E-03 J	1.0E-03 J	MG/KG	S24-SS02	1 / 24	0.0009 - 0.001	1.7E+01	0 / 24	No
95-63-6	1,2,4-Trimethylbenzene	5.0E-03 J	5.0E-03 J	MG/KG	S24-SS02	1 / 24	0.0009 - 0.001	2.6E+01	0 / 24	No
108-67-8	1,3,5-Trimethylbenzene	2.0E-03 J	1.4E-01	MG/KG	S24-SS02	2 / 24	0.0009 - 0.001	1.8E+02	0 / 24	No
78-93-3	2-Butanone	4.0E-03 J	2.1E-02	MG/KG	S24-SS05	6 / 24	0.003 - 0.005	2.0E+04	0 / 24	No
67-64-1	Acetone	1.1E-02 J	1.8E-01 J	MG/KG	S24-SS05	19 / 24	0.006 - 0.008	6.3E+04	0 / 24	No
71-43-2	Benzene	2.0E-03 J	2.3E-01	MG/KG	S24-SS02	3 / 24	0.0004 - 0.0006	5.4E+00	0 / 24	No
75-25-2	Bromoform	2.0E-03 J	2.0E-03 J	MG/KG	S24-SS07	1 / 24	0.0009 - 0.001	2.2E+02	0 / 24	No
75-15-0	Carbon disulfide	1.0E-03 J	8.0E-03	MG/KG	S24-SS02	6 / 24	0.0009 - 0.001	3.7E+02	0 / 24	No
110-82-7	Cyclohexane	1.0E-03 J	5.0E-03 J	MG/KG	S24-SS06	2 / 24	0.0009 - 0.001	1.2E+02	0 / 24	No
100-41-4	Ethylbenzene	1.0E-03 J	5.3E+00	MG/KG	S24-SS02	5 / 24	0.0009 - 0.049	2.7E+01	0 / 24	No
98-82-8	Isopropylbenzene	2.0E-03 J	3.1E-01	MG/KG	S24-SS02	4 / 24	0.0009 - 0.001	2.7E+02	0 / 24	No
179601-23-1	m,p-Xylene	2.0E-03 J	1.2E-01	MG/KG	S24-SS02	5 / 24	0.0009 - 0.001	2.5E+02	0 / 24	No
108-87-2	Methylcyclohexane	6.0E-03	6.0E-03	MG/KG	S24-SS06	1 / 24	0.0009 - 0.001	1.4E+02	0 / 24	No
91-20-3	Naphthalene	1.0E-03 J	3.0E-03 J	MG/KG	S24-SS04	3 / 24	0.0009 - 0.001	1.8E+01	0 / 24	No
103-65-1	n-Propylbenzene	3.0E-03 J	2.4E-01	MG/KG	S24-SS02	3 / 24	0.0009 - 0.001	2.6E+02	0 / 24	No
95-47-6	o-Xylene	3.0E-03 J	1.3E-01	MG/KG	S24-SS02	3 / 24	0.0009 - 0.001	3.0E+02	0 / 24	No
135-98-8	sec-Butylbenzene	1.3E-02 J	1.5E-02	MG/KG	S24-SS02	2 / 24	0.0009 - 0.001	2.7E+02	0 / 24	No
100-42-5	Styrene	2.2E-01 J	2.2E-01 J	MG/KG	S24-SS02	1 / 24	0.0009 - 0.049	8.7E+02	0 / 24	No
127-18-4	Tetrachloroethene	3.0E-03 J	8.0E-03	MG/KG	S24-SS07	4 / 24	0.0009 - 0.001	4.1E+01	0 / 24	No
108-88-3	Toluene	5.0E-03 J	1.2E-01	MG/KG	S24-SS02	2 / 24	0.0009 - 0.001	8.2E+02	0 / 24	No
92-52-4	1,1'-Biphenyl	2.9E-02 J	3.6E+00	MG/KG	S24-SS04	5 / 24	0.018 - 0.2	2.1E+01	0 / 24	No
95-50-1	1,2-Dichlorobenzene	1.0E-03 J	1.0E-03 J	MG/KG	S24-SS07	1 / 24	0.0009 - 0.001	3.8E+02	0 / 24	No
91-57-6	2-Methylnaphthalene	4.0E-03 J	3.5E+00	MG/KG	S24-SS01	8 / 24	0.004 - 0.039	3.7E+02	0 / 24	No
83-32-9	Acenaphthene	5.0E-03 J	7.9E-01	MG/KG	S24-SS01	8 / 24	0.004 - 0.039	3.3E+03	0 / 24	No
208-96-8	Acenaphthylene	5.0E-03 J	3.6E-01	MG/KG	S24-SS01	12 / 24	0.004 - 0.039	3.3E+03	0 / 24	No
120-12-7	Anthracene	8.0E-03 J	7.8E-01	MG/KG	S24-SS01	9 / 24	0.004 - 0.039	1.7E+04	0 / 24	No
56-55-3	Benzo(a)anthracene	6.0E-03 J	4.2E+00	MG/KG	S24-SS01	10 / 24	0.004 - 0.039	2.1E+00	1 / 24	Yes
50-32-8	Benzo(a)pyrene	9.0E-03 J	4.1E+00	MG/KG	S24-SS02	10 / 24	0.004 - 0.039	2.1E-01	5 / 24	Yes
205-99-2	Benzo(b)fluoranthene	4.0E-03 J	7.4E+00	MG/KG	S24-SS01	12 / 24	0.004 - 0.039	2.1E+00	2 / 24	Yes
191-24-2	Benzo(g,h,i)perylene	1.6E-02 J	3.9E+00	MG/KG	S24-SS02	10 / 24	0.004 - 0.039	1.7E+03	0 / 24	No
207-08-9	Benzo(k)fluoranthene	5.0E-03 J	2.5E+00	MG/KG	S24-SS02	10 / 24	0.004 - 0.039	2.1E+01	0 / 24	No
117-81-7	Bis(2-ethylhexyl)phthalate	1.3E-01 J	1.3E-01 J	MG/KG	S24-SS01	1 / 24	0.072 - 0.78	1.2E+02	0 / 24	No
86-74-8	Carbazole	2.5E-02 J	2.8E-01	MG/KG	S24-SS01	4 / 24	0.018 - 0.2	NA	--	NA
218-01-9	Chrysene	9.0E-03 J	4.5E+00	MG/KG	S24-SS01	10 / 24	0.004 - 0.039	2.1E+02	0 / 24	No
53-70-3	Dibenz(a,h)anthracene	8.0E-03 J	9.9E-01	MG/KG	S24-SS01	9 / 24	0.004 - 0.039	2.1E-01	2 / 24	Yes
132-64-9	Dibenzofuran	2.4E-02 J	5.8E+00	MG/KG	S24-SS01	5 / 24	0.018 - 0.2	1.0E+02	0 / 24	No
206-44-0	Fluoranthene	4.0E-03 J	1.1E+01	MG/KG	S24-SS01	13 / 24	0.004 - 0.039	2.2E+03	0 / 24	No
86-73-7	Fluorene	5.0E-03 J	3.3E-01	MG/KG	S24-SS04	10 / 24	0.004 - 0.039	2.2E+03	0 / 24	No
193-39-5	Indeno(1,2,3-cd)pyrene	1.2E-02 J	3.8E+00	MG/KG	S24-SS02	10 / 24	0.004 - 0.039	2.1E+00	2 / 24	Yes
85-01-8	Phenanthrene	6.0E-03 J	5.2E+00	MG/KG	S24-SS01	13 / 24	0.004 - 0.039	1.7E+04	0 / 24	No
108-95-2	Phenol	6.5E-02	6.5E-02	MG/KG	S24-SS01	1 / 24	0.018 - 0.2	1.8E+04	0 / 24	No
129-00-0	Pyrene	5.0E-03 J	1.1E+01	MG/KG	S24-SS01	13 / 24	0.004 - 0.039	1.7E+03	0 / 24	No
7440-38-2	Arsenic	2.2E+00	1.9E+01	MG/KG	S24-SS02	24 / 24	0.0847 - 0.1	1.6E+00	24 / 24	Yes
7440-39-3	Barium	4.9E+01	7.4E+02	MG/KG	S24-SS02	24 / 24	0.0189 - 0.0421	1.9E+04	0 / 24	No
7440-43-9	Cadmium	4.0E-01 J	1.6E+00	MG/KG	S24-SS08	24 / 24	0.021 - 0.0252	8.0E+01	0 / 24	No
7440-47-3	Chromium	7.4E+00	3.2E+01	MG/KG	S24-SS06	24 / 24	0.147 - 0.176	1.5E+05	0 / 24	No
7439-92-1	Lead	3.8E+00	2.2E+01	MG/KG	S24-SS05	24 / 24	0.231 - 0.277	8.0E+02	0 / 24	No
7439-97-6	Mercury	1.1E-02 J	9.2E-02 J	MG/KG	S24-SS03	20 / 24	0.0073 - 0.0087	3.1E+00	0 / 24	No
7782-49-2	Selenium	2.0E+00 J	5.0E+00	MG/KG	S24-SS01	17 / 24	0.714 - 0.857	5.1E+02	0 / 24	No

Note:
J = Estimated Value
Screening Level = USEPA Industrial Regional Screening Level (RSL) based on $1x10^{-6}$ or HQ = 0.1 (November 2011).
FOE = Frequency of Exceedance
NA = Not applicable/not available
Soil saturation value for n-hexane used as surrogate for methylcylcohexane
RSL value for m-xylene used as surrogate for m,p-xylene
Soil saturation value for cumene used as surrogate for sec-butylbenzene
RSL value for acenaphthene used as surrogate for acenaphthylene
RSL value for pyrene used as surrogate for benzo(g,h,i)perylene
RSL value for anthracene used as surrogate for phenanthrene
RSL value for chromium III used as surrogate for chromium

TABLE 6-16

SWMU 24 Step 2: Risk Ratio Screening for Soil, Maximum Detected Concentration

Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Surface Soil

Analyte	Maximum Detected Concentration (Qualifier)	Location of Maximum Detection	Frequency of Detection	Industrial Soil RSL	Acceptable Risk Level	Corresponding Hazard Index[a]	Corresponding Cancer Risk[b]	Target Organ/ Critical Effect
Semi-volatile Organic Compounds (mg/kg)								
Benzo(a)anthracene	4.2E+00	S24-SS01	8 / 8	3.6E+01	1E-06	NA	1E-07	NA
Benzo(a)pyrene	4.1E+00	S24-SS02	8 / 8	1.6E+00	1E-06	NA	3E-06	NA
Benzo(b)fluoranthene	7.4E+00	S24-SS01	8 / 8	1.6E+00	1E-06	NA	5E-06	NA
Benzo(k)fluoranthene	2.5E+00	S24-SS02	8 / 8	1.6E+00	1E-06	NA	2E-06	NA
Chrysene	4.5E+00	S24-SS01	8 / 8	1.6E+00	1E-06	NA	3E-06	NA
Dibenz(a,h)anthracene	9.9E-01	S24-SS01	7 / 8	1.6E+00	1E-06	NA	6E-07	NA
Indeno(1,2,3-cd)pyrene	3.8E+00	S24-SS02	8 / 8	1.6E+00	1E-06	NA	2E-06	NA
Metals (mg/kg)								
Arsenic	1.6E+01	S24-SS07	8 / 8	1.6E+00	1E-06	NA	1E-05	NA
Arsenic	1.6E+01	S24-SS07	8 / 8	2.6E+02	1E+00	0.06	NA	Skin/vascular
Cumulative Corresponding Hazard Index[c]						**0.06**		
Cumulative Corresponding Cancer Risk[d]							**2E-05**	

Total Soil

Analyte	Maximum Detected Concentration (Qualifier)	Location of Maximum Detection	Frequency of Detection	Industrial Soil RSL	Acceptable Risk Level	Corresponding Hazard Index[a]	Corresponding Cancer Risk[b]	Target Organ/ Critical Effect
Semi-volatile Organic Compounds (mg/kg)								
Benzo(a)anthracene	4.2E+00	S24-SS01	10 / 24	3.6E+01	1E-06	NA	1E-07	NA
Benzo(a)pyrene	4.1E+00	S24-SS02	10 / 24	1.6E+00	1E-06	NA	3E-06	NA
Benzo(b)fluoranthene	7.4E+00	S24-SS01	12 / 24	1.6E+00	1E-06	NA	5E-06	NA
Benzo(k)fluoranthene	2.5E+00	S24-SS02	10 / 24	1.6E+00	1E-06	NA	2E-06	NA
Chrysene	4.5E+00	S24-SS01	10 / 24	1.6E+00	1E-06	NA	3E-06	NA
Dibenz(a,h)anthracene	9.9E-01	S24-SS01	9 / 24	1.6E+00	1E-06	NA	6E-07	NA
Indeno(1,2,3-cd)pyrene	3.8E+00	S24-SS02	10 / 24	1.6E+00	1E-06	NA	2E-06	NA
Metals (mg/kg)								
Arsenic	1.9E+01	S24-SS02	24 / 24	1.6E+00	1E-06	NA	1E-05	NA
Arsenic	1.9E+01	S24-SS02	24 / 24	2.6E+02	1E+00	0.07	NA	Skin/vascular
Cumulative Corresponding Hazard Index[c]						**0.07**		
Cumulative Corresponding Cancer Risk[d]							**3E-05**	

[a] Corresponding Hazard Index equals maximum detected concentration divided by the RSL divided by the acceptable risk level.

[b] Corresponding Cancer Risk equals maximum detected concentration divided by the RSL divided by the acceptable risk level.

[c] Cumulative Corresponding Hazard Index equals sum of Corresponding Hazard Indices for each constituent.

[d] Cumulative Corresponding Cancer Risk equals sum of Corresponding Cancer Risks for each constituent.

Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites (USEPA, November 2011). [Online].
Available: http://epa-prgs.ornl.gov/chemicals/index.shtml.

HI = Hazard Index

mg/kg = milligrams per kilogram

NA = Not available/not applicable

TABLE 6-17
SWMU 25-28 Step 1: Selection of Chemicals of Potential Concern
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

History:	Former Wastewater Treatment System

Surface Soil

CAS Number	Analyte	Minimum Detected Concentration	Maximum Detected Concentration	Units	Location of Maximum Detection	Frequency of Detection	Range of Detection Limits	Screening Level	Frequency of Exceedance	COPC Flag
95-63-6	1,2,4-Trimethylbenzene	2.0E-03 J	3.0E-03 J	MG/KG	S25-SS03	2 / 4	0.0009 - 0.001	2.6E+01	0 / 4	No
78-93-3	2-Butanone	4.0E-03 J	6.0E-03 J	MG/KG	S25-SS03	2 / 4	0.003 - 0.004	2.0E+04	0 / 4	No
67-64-1	Acetone	1.4E-02 J	2.4E-02 J	MG/KG	S25-SS04	4 / 4	0.006 - 0.007	6.3E+04	0 / 4	No
71-43-2	Benzene	6.0E-04 J	4.0E-03 J	MG/KG	S25-SS01, S25-SS03	4 / 4	0.0004 - 0.0005	5.4E+00	0 / 4	No
75-15-0	Carbon disulfide	1.0E-03 J	6.0E-03	MG/KG	S25-SS01, S25-SS03	4 / 4	0.0009 - 0.001	3.7E+02	0 / 4	No
110-82-7	Cyclohexane	1.0E-03 J	1.0E-02	MG/KG	S25-SS02, S25-SS03	4 / 4	0.0009 - 0.001	1.2E+02	0 / 4	No
100-41-4	Ethylbenzene	3.0E-03 J	3.0E-03 J	MG/KG	S25-SS01, S25-SS03	2 / 4	0.0009 - 0.001	2.7E+01	0 / 4	No
179601-23-1	m,p-Xylene	3.0E-03 J	4.0E-03 J	MG/KG	S25-SS03	2 / 4	0.0009 - 0.001	2.5E+02	0 / 4	No
108-87-2	Methylcyclohexane	2.0E-03 J	1.4E-02	MG/KG	S25-SS02	4 / 4	0.0009 - 0.001	NA	--	NA
75-09-2	Methylene chloride	2.0E-03 J	2.0E-03 J	MG/KG	S25-SS02	1 / 4	0.002 - 0.002	5.3E+01	0 / 4	No
95-47-6	o-Xylene	1.0E-03 J	2.0E-03 J	MG/KG	S25-SS03	2 / 4	0.0009 - 0.001	3.0E+02	0 / 4	No
108-88-3	Toluene	1.0E-03 J	9.0E-03	MG/KG	S25-SS03	4 / 4	0.0009 - 0.001	8.2E+02	0 / 4	No
92-52-4	1,1'-Biphenyl	3.8E-02	2.2E-01	MG/KG	S25-SS04	3 / 4	0.018 - 0.089	2.1E+01	0 / 4	No
95-95-4	2,4,5-Trichlorophenol	2.5E-02 J	2.5E-02 J	MG/KG	S25-SS02	1 / 4	0.018 - 0.089	6.2E+03	0 / 4	No
91-57-6	2-Methylnaphthalene	1.7E-02 J	4.4E-01	MG/KG	S25-SS03	4 / 4	0.004 - 0.018	3.7E+02	0 / 4	No
208-96-8	Acenaphthylene	5.0E-03 J	5.0E-03 J	MG/KG	S25-SS02	1 / 4	0.004 - 0.018	3.3E+03	0 / 4	No
120-12-7	Anthracene	7.0E-03 J	1.4E-02 J	MG/KG	S25-SS03	3 / 4	0.004 - 0.018	1.7E+04	0 / 4	No
56-55-3	Benzo(a)anthracene	1.0E-02 J	2.4E-02	MG/KG	S25-SS03	3 / 4	0.004 - 0.018	2.1E+00	0 / 4	No
50-32-8	Benzo(a)pyrene	1.4E-02 J	2.6E-02	MG/KG	S25-SS03	3 / 4	0.004 - 0.018	2.1E-01	0 / 4	No
205-99-2	Benzo(b)fluoranthene	2.6E-02	3.8E-02	MG/KG	S25-SS03	3 / 4	0.004 - 0.018	2.1E+00	0 / 4	No
191-24-2	Benzo(g,h,i)perylene	1.9E-02 J	3.2E-02	MG/KG	S25-SS03	3 / 4	0.004 - 0.018	1.7E+03	0 / 4	No
207-08-9	Benzo(k)fluoranthene	1.0E-02 J	1.4E-02 J	MG/KG	S25-SS03	3 / 4	0.004 - 0.018	2.1E+01	0 / 4	No
117-81-7	Bis(2-ethylhexyl)phthalate	7.6E-02 J	1.8E-01 J	MG/KG	S25-SS04	2 / 4	0.071 - 0.36	1.2E+02	0 / 4	No
218-01-9	Chrysene	1.9E-02 J	5.4E-02	MG/KG	S25-SS03	3 / 4	0.004 - 0.018	2.1E+02	0 / 4	No
53-70-3	Dibenz(a,h)anthracene	7.0E-03 J	7.0E-03 J	MG/KG	S25-SS03	1 / 4	0.004 - 0.018	2.1E-01	0 / 4	No
132-64-9	Dibenzofuran	7.1E-02	7.1E-02	MG/KG	S25-SS03	1 / 4	0.018 - 0.089	1.0E+02	0 / 4	No
206-44-0	Fluoranthene	2.2E-02	3.9E-02	MG/KG	S25-SS03	3 / 4	0.004 - 0.018	2.2E+03	0 / 4	No
86-73-7	Fluorene	2.4E-02	2.4E-02	MG/KG	S25-SS03	1 / 4	0.004 - 0.018	2.2E+03	0 / 4	No
193-39-5	Indeno(1,2,3-cd)pyrene	1.5E-02 J	1.9E-02	MG/KG	S25-SS03	3 / 4	0.004 - 0.018	2.1E+00	0 / 4	No
85-01-8	Phenanthrene	2.4E-02	2.2E-01	MG/KG	S25-SS03	4 / 4	0.004 - 0.018	1.7E+04	0 / 4	No
129-00-0	Pyrene	2.3E-02	4.7E-02	MG/KG	S25-SS03	4 / 4	0.004 - 0.018	1.7E+03	0 / 4	No
7440-38-2	Arsenic	1.0E+01	4.3E+01	MG/KG	S25-SS04	4 / 4	0.0836 - 0.0902	1.6E+00	4 / 4	Yes
7440-39-3	Barium	4.8E+01	9.2E+01	MG/KG	S25-SS04	4 / 4	0.019 - 0.0203	1.9E+04	0 / 4	No
7440-43-9	Cadmium	8.6E-01	1.3E+00	MG/KG	S25-SS04	4 / 4	0.0211 - 0.0226	8.0E+01	0 / 4	No
7440-47-3	Chromium	1.0E+01	4.3E+01	MG/KG	S25-SS04	4 / 4	0.148 - 0.158	1.5E+05	0 / 4	No
7439-92-1	Lead	7.0E+00	2.0E+01	MG/KG	S25-SS04	4 / 4	0.232 - 0.248	8.0E+02	0 / 4	No
7439-97-6	Mercury	1.7E-02 J	5.1E-02 J	MG/KG	S25-SS04	4 / 4	0.0071 - 0.0079	3.1E+00	0 / 4	No
7782-49-2	Selenium	1.1E+00 J	1.5E+00 J	MG/KG	S25-SS03	2 / 4	0.718 - 0.767	5.1E+02	0 / 4	No

TABLE 6-17
SWMU 25-28 Step 1: Selection of Chemicals of Potential Concern
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

History:	Former Wastewater Treatment System

Total Soil

CAS Number	Analyte	Minimum Detected Concentration	Maximum Detected Concentration	Units	Location of Maximum Detection	Frequency of Detection	Range of Detection Limits	Screening Level	Frequency of Exceedance	COPC Flag
95-63-6	1,2,4-Trimethylbenzene	2.0E-03 J	5.0E-03 J	MG/KG	S25-SS03	3 / 12	0.0009 - 0.001	2.6E+01	0 / 12	No
108-67-8	1,3,5-Trimethylbenzene	1.0E+00 J	1.0E+00 J	MG/KG	S25-SS03	1 / 12	0.0009 - 0.048	1.8E+02	0 / 12	No
78-93-3	2-Butanone	4.0E-03 J	1.4E-02	MG/KG	S25-SS03	6 / 12	0.003 - 0.005	2.0E+04	0 / 12	No
67-64-1	Acetone	8.0E-03 J	8.0E-02 J	MG/KG	S25-SS03	12 / 12	0.006 - 0.008	6.3E+04	0 / 12	No
71-43-2	Benzene	6.0E-04 J	4.0E-03 J	MG/KG	S25-SS01, S25-SS03	7 / 12	0.0004 - 0.0006	5.4E+00	0 / 12	No
75-15-0	Carbon disulfide	1.0E-03 J	6.0E-03	MG/KG	S25-SS01, S25-SS03	4 / 12	0.0009 - 0.001	3.7E+02	0 / 12	No
110-82-7	Cyclohexane	1.0E-03 J	1.0E-02	MG/KG	S25-SS02, S25-SS03	4 / 12	0.0009 - 0.001	1.2E+02	0 / 12	No
100-41-4	Ethylbenzene	3.0E-03 J	3.7E+00 J	MG/KG	S25-SS03	4 / 12	0.0009 - 0.05	2.7E+01	0 / 12	No
98-82-8	Isopropylbenzene	1.8E-02	1.2E+00 J	MG/KG	S25-SS03	2 / 12	0.0009 - 0.048	2.7E+02	0 / 12	No
179601-23-1	m,p-Xylene	3.0E-03 J	1.5E-01	MG/KG	S25-SS03	4 / 12	0.0009 - 0.001	2.5E+02	0 / 12	No
108-87-2	Methylcyclohexane	2.0E-03 J	1.4E-02	MG/KG	S25-SS02	4 / 12	0.0009 - 0.001	NA	--	NA
75-09-2	Methylene chloride	2.0E-03 J	2.0E-03 J	MG/KG	S25-SS02	1 / 12	0.002 - 0.002	5.3E+01	0 / 12	No
91-20-3	Naphthalene	1.7E-02	1.7E-02	MG/KG	S25-SS03	1 / 12	0.0009 - 0.001	1.8E+01	0 / 12	No
103-65-1	n-Propylbenzene	3.0E-03 J	1.1E+00 J	MG/KG	S25-SS03	2 / 12	0.0009 - 0.048	2.6E+02	0 / 12	No
95-47-6	o-Xylene	1.0E-03 J	1.3E-01	MG/KG	S25-SS03	4 / 12	0.0009 - 0.001	3.0E+02	0 / 12	No
135-98-8	sec-Butylbenzene	6.1E-02 J	6.1E-02 J	MG/KG	S25-SS03	1 / 12	0.0009 - 0.001	2.7E+02	0 / 12	No
98-06-6	tert-Butylbenzene	1.0E-03 J	1.0E-03 J	MG/KG	S25-SS03	1 / 12	0.0009 - 0.001	2.7E+02	0 / 12	No
127-18-4	Tetrachloroethene	2.0E-02	2.0E-02	MG/KG	S25-SS03	1 / 12	0.0009 - 0.001	4.1E+01	0 / 12	No
108-88-3	Toluene	1.0E-03 J	9.0E-03	MG/KG	S25-SS03	6 / 12	0.0009 - 0.001	8.2E+02	0 / 12	No
92-52-4	1,1'-Biphenyl	2.6E-02 J	7.3E+01 J	MG/KG	S25-SS03	6 / 12	0.018 - 0.41	2.1E+01	1 / 12	Yes
95-95-4	2,4,5-trichlorophenol	2.5E-02 J	2.5E-02 J	MG/KG	S25-SS02	1 / 12	0.018 - 0.089	6.2E+03	0 / 12	No
91-57-6	2-Methylnaphthalene	6.0E-03 J	4.4E-01	MG/KG	S25-SS03	7 / 12	0.004 - 0.018	3.7E+02	0 / 12	No
106-44-5	4-Methylphenol	2.9E-02 J	2.9E-02 J	MG/KG	S25-SS04	1 / 12	0.018 - 0.089	3.1E+02	0 / 12	No
83-32-9	Acenaphthene	6.0E-03 J	3.9E-02	MG/KG	S25-SS04	2 / 12	0.004 - 0.018	3.3E+03	0 / 12	No
208-96-8	Acenaphthylene	5.0E-03 J	1.2E-01	MG/KG	S25-SS04	3 / 12	0.004 - 0.018	3.3E+03	0 / 12	No
120-12-7	Anthracene	7.0E-03 J	1.7E-01	MG/KG	S25-SS04	5 / 12	0.004 - 0.018	1.7E+04	0 / 12	No
56-55-3	Benzo(a)anthracene	1.0E-02 J	7.0E-01	MG/KG	S25-SS04	5 / 12	0.004 - 0.018	2.1E+00	0 / 12	No
50-32-8	Benzo(a)pyrene	1.4E-02 J	7.2E-01	MG/KG	S25-SS04	5 / 12	0.004 - 0.018	2.1E-01	1 / 12	Yes
205-99-2	Benzo(b)fluoranthene	9.0E-03 J	8.8E-01	MG/KG	S25-SS04	6 / 12	0.004 - 0.018	2.1E+00	0 / 12	No
191-24-2	Benzo(g,h,i)perylene	1.9E-02 J	5.3E-01	MG/KG	S25-SS04	5 / 12	0.004 - 0.018	1.7E+03	0 / 12	No
207-08-9	Benzo(k)fluoranthene	1.0E-02 J	3.9E-01	MG/KG	S25-SS04	5 / 12	0.004 - 0.018	2.1E+01	0 / 12	No
117-81-7	Bis(2-ethylhexyl)phthalate	7.6E-02 J	4.2E-01	MG/KG	S25-SS03	3 / 12	0.071 - 0.36	1.2E+02	0 / 12	No
86-74-8	Carbazole	2.7E-02 J	2.7E-02 J	MG/KG	S25-SS04	1 / 12	0.018 - 0.089	NA	--	NA
218-01-9	Chrysene	1.0E-02 J	6.4E-01	MG/KG	S25-SS04	6 / 12	0.004 - 0.018	2.1E+02	0 / 12	No
53-70-3	Dibenz(a,h)anthracene	5.0E-03 J	1.0E-01	MG/KG	S25-SS04	3 / 12	0.004 - 0.018	2.1E-01	0 / 12	No
132-64-9	Dibenzofuran	3.6E-02 J	2.9E-01 J	MG/KG	S25-SS03	3 / 12	0.018 - 0.089	1.0E+02	0 / 12	No
206-44-0	Fluoranthene	2.2E-02	1.5E+00	MG/KG	S25-SS04	5 / 12	0.004 - 0.018	2.2E+03	0 / 12	No
86-73-7	Fluorene	2.4E-02	5.0E-02	MG/KG	S25-SS04	2 / 12	0.004 - 0.018	2.2E+03	0 / 12	No
193-39-5	Indeno(1,2,3-cd)pyrene	1.5E-02 J	4.7E-01	MG/KG	S25-SS04	5 / 12	0.004 - 0.018	2.1E+00	0 / 12	No
85-01-8	Phenanthrene	2.4E-02	5.7E-01	MG/KG	S25-SS04	7 / 12	0.004 - 0.018	1.7E+04	0 / 12	No
129-00-0	Pyrene	2.3E-02	1.3E+00	MG/KG	S25-SS04	6 / 12	0.004 - 0.018	1.7E+03	0 / 12	No
7440-38-2	Arsenic	1.0E+01	4.3E+01	MG/KG	S25-SS04	12 / 12	0.0836 - 0.1	1.6E+00	12 / 12	Yes
7440-39-3	Barium	4.8E+01	1.9E+02	MG/KG	S25-SS04	12 / 12	0.019 - 0.0225	1.9E+04	0 / 12	No
7440-43-9	Cadmium	8.6E-01	1.5E+00	MG/KG	S25-SS01	12 / 12	0.0211 - 0.025	8.0E+01	0 / 12	No
7440-47-3	Chromium	1.0E+01	4.3E+01	MG/KG	S25-SS04	12 / 12	0.148 - 0.175	1.5E+05	0 / 12	No
7439-92-1	Lead	7.0E+00	4.9E+01	MG/KG	S25-SS04	12 / 12	0.232 - 0.275	8.0E+02	0 / 12	No
7439-97-6	Mercury	1.7E-02 J	2.5E-01	MG/KG	S25-SS04	12 / 12	0.0071 - 0.0086	3.1E+00	0 / 12	No
7782-49-2	Selenium	1.1E+00 J	3.4E+00 J	MG/KG	S25-SS03	8 / 12	0.718 - 0.851	5.1E+02	0 / 12	No

Note:
J = Estimated Value
Screening Level = USEPA Industrial Regional Screening Level (RSL) based on $1x10^{-6}$ or HQ = 0.1 (November 2011).
FOE = Frequency of Exceedance
NA = Not applicable/not available
RSL value for m-xylene used as surrogate for m,p-xylene
Soil saturation value for cumene used as surrogate for sec- and tert-butylbenzene
RSL value for acenaphthene used as surrogate for acenaphthylene
RSL value for pyrene used as surrogate for benzo(g,h,i)perylene
RSL value for anthracene used as surrogate for phenanthrene
RSL value for chromium III used as surrogate for chromium
RSL value for n-hexane used as surrogate for methylcylcohexane

TABLE 6-18

SWMU 25-28 Step 2: Risk Ratio Screening for Soil, Maximum Detected Concentration

Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Surface Soil

Analyte	Maximum Detected Concentration (Qualifier)	Location of Maximum Detection	Frequency of Detection	Industrial Soil RSL	Acceptable Risk Level	Corresponding Hazard Index[a]	Corresponding Cancer Risk[b]	Target Organ/ Critical Effect
Metals (mg/kg)								
Arsenic	4.3E+01	S25-SS04	4 / 4	1.6E+00	1E-06	NA	3E-05	NA
Arsenic	4.3E+01	S25-SS04	4 / 4	2.6E+02	1E+00	0.2	NA	Skin/vascular
Cumulative Corresponding Hazard Index[c]						**0.2**		
Cumulative Corresponding Cancer Risk[d]							**3E-05**	

Total Soil

Analyte	Maximum Detected Concentration (Qualifier)	Location of Maximum Detection	Frequency of Detection	Industrial Soil RSL	Acceptable Risk Level	Corresponding Hazard Index[a]	Corresponding Cancer Risk[b]	Target Organ/ Critical Effect
Semi-volatile Organic Compounds (mg/kg)								
1,1'-Biphenyl	7.3E+01 J	S25-SS03	6 / 12	3.6E+02	1E-06	NA	2E-07	NA
1,1'-Biphenyl	7.3E+01 J	S25-SS03	6 / 12	2.1E+02	1E+00	0.3	NA	Kidney
Benzo(a)anthracene	7.0E-01	S25-SS04	5 / 12	3.6E+01	1E-06	NA	2E-08	NA
Benzo(a)pyrene	7.2E-01	S25-SS04	5 / 12	1.6E+00	1E-06	NA	5E-07	NA
Benzo(b)fluoranthene	8.8E-01	S25-SS04	6 / 12	1.6E+00	1E-06	NA	6E-07	NA
Benzo(k)fluoranthene	3.9E-01	S25-SS04	5 / 12	1.6E+00	1E-06	NA	2E-07	NA
Chrysene	6.4E-01	S25-SS04	6 / 12	1.6E+00	1E-06	NA	4E-07	NA
Dibenz(a,h)anthracene	1.0E-01	S25-SS04	3 / 12	1.6E+00	1E-06	NA	6E-08	NA
Indeno(1,2,3-cd)pyrene	4.7E-01	S25-SS04	5 / 12	1.6E+00	1E-06	NA	3E-07	NA
Metals (mg/kg)								
Arsenic	4.3E+01	S25-SS04	12 / 12	1.6E+00	1E-06	NA	3E-05	NA
Arsenic	4.3E+01	S25-SS04	12 / 12	2.6E+02	1E+00	0.2	NA	Skin/vascular
Cumulative Corresponding Hazard Index[c]						**0.5**		
Cumulative Corresponding Cancer Risk[d]							**3E-05**	

[a] Corresponding Hazard Index equals maximum detected concentration divided by the RSL divided by the acceptable risk level.

[b] Corresponding Cancer Risk equals maximum detected concentration divided by the RSL divided by the acceptable risk level.

[c] Cumulative Corresponding Hazard Index equals sum of Corresponding Hazard Indices for each constituent.

[d] Cumulative Corresponding Cancer Risk equals sum of Corresponding Cancer Risks for each constituent.

Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites (USEPA, November 2011). [Online].
Available: http://epa-prgs.ornl.gov/chemicals/index.shtml.

HI = Hazard Index

mg/kg = milligrams per kilogram

NA = Not available/not applicable

TABLE 6-19
SWMU 29 Step 1: Selection of Chemicals of Potential Concern
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

History: Former Used Filter Sand Pile

Surface Soil

CAS Number	Analyte	Minimum Detected Concentration	Maximum Detected Concentration	Units	Location of Maximum Detection	Frequency of Detection	Range of Detection Limits	Screening Level	Frequency of Exceedance	COPC Flag
78-93-3	2-Butanone	7.0E-03 J	1.2E-02 J	MG/KG	S29-SS01	2 / 2	0.004 - 0.005	2.0E+04	0 / 2	No
67-64-1	Acetone	7.8E-02 J	1.0E-01 J	MG/KG	S29-SS01	2 / 2	0.007 - 0.008	6.3E+04	0 / 2	No
71-43-2	Benzene	1.0E-03 J	1.0E-03 J	MG/KG	S29-SS01	1 / 2	0.0005 - 0.0006	5.4E+00	0 / 2	No
75-15-0	Carbon disulfide	4.0E-03 J	4.0E-03 J	MG/KG	S29-SS01	1 / 2	0.001 - 0.001	3.7E+02	0 / 2	No
110-82-7	Cyclohexane	2.0E-03 J	2.0E-03 J	MG/KG	S29-SS01	1 / 2	0.001 - 0.001	1.2E+02	0 / 2	No
108-87-2	Methylcyclohexane	2.0E-03 J	2.0E-03 J	MG/KG	S29-SS01	1 / 2	0.001 - 0.001	NA	--	NA
108-88-3	Toluene	1.0E-03 J	1.0E-03 J	MG/KG	S29-SS01	1 / 2	0.001 - 0.001	8.2E+02	0 / 2	No
56-55-3	Benzo(a)anthracene	5.0E-03 J	1.3E-02 J	MG/KG	S29-SS01	2 / 2	0.004 - 0.004	2.1E+00	0 / 2	No
50-32-8	Benzo(a)pyrene	7.0E-03 J	2.0E-02 J	MG/KG	S29-SS01	2 / 2	0.004 - 0.004	2.1E-01	0 / 2	No
205-99-2	Benzo(b)fluoranthene	1.0E-02 J	2.5E-02	MG/KG	S29-SS01	2 / 2	0.004 - 0.004	2.1E+00	0 / 2	No
191-24-2	Benzo(g,h,i)perylene	7.0E-03 J	2.1E-02	MG/KG	S29-SS01	2 / 2	0.004 - 0.004	1.7E+03	0 / 2	No
207-08-9	Benzo(k)fluoranthene	5.0E-03 J	1.2E-02 J	MG/KG	S29-SS01	2 / 2	0.004 - 0.004	2.1E+01	0 / 2	No
218-01-9	Chrysene	6.0E-03 J	1.7E-02 J	MG/KG	S29-SS01	2 / 2	0.004 - 0.004	2.1E+02	0 / 2	No
206-44-0	Fluoranthene	1.0E-02 J	2.3E-02	MG/KG	S29-SS01	2 / 2	0.004 - 0.004	2.2E+03	0 / 2	No
193-39-5	Indeno(1,2,3-cd)pyrene	5.0E-03 J	1.4E-02 J	MG/KG	S29-SS01	2 / 2	0.004 - 0.004	2.1E+00	0 / 2	No
85-01-8	Phenanthrene	5.0E-03 J	1.2E-02 J	MG/KG	S29-SS01	2 / 2	0.004 - 0.004	1.7E+04	0 / 2	No
108-95-2	Phenol	2.7E-02 J	2.7E-02 J	MG/KG	S29-SS01	1 / 2	0.02 - 0.021	1.8E+04	0 / 2	No
129-00-0	Pyrene	1.0E-02 J	2.3E-02	MG/KG	S29-SS01	2 / 2	0.004 - 0.004	1.7E+03	0 / 2	No
7440-38-2	Arsenic	6.8E+00	1.5E+01	MG/KG	S29-SS01	2 / 2	0.0928 - 0.095	1.6E+00	2 / 2	Yes
7440-39-3	Barium	8.7E+01	1.0E+02	MG/KG	S29-SS01	2 / 2	0.0209 - 0.0218	1.9E+04	0 / 2	No
7440-43-9	Cadmium	1.1E+00	1.5E+00	MG/KG	S29-SS01	2 / 2	0.0232 - 0.0242	8.0E+01	0 / 2	No
7440-47-3	Chromium	2.2E+01	2.3E+01	MG/KG	S29-SS01	2 / 2	0.162 - 0.169	1.5E+05	0 / 2	No
7439-92-1	Lead	1.6E+01	2.4E+01	MG/KG	S29-SS01	2 / 2	0.255 - 0.266	8.0E+02	0 / 2	No
7439-97-6	Mercury	1.7E-02 J	2.9E-02 J	MG/KG	S29-SS01	2 / 2	0.0083 - 0.0085	3.1E+00	0 / 2	No
7782-49-2	Selenium	2.4E+00	3.6E+00	MG/KG	S29-SS01	2 / 2	0.789 - 0.823	5.1E+02	0 / 2	No

Total Soil

CAS Number	Analyte	Minimum Detected Concentration	Maximum Detected Concentration	Units	Location of Maximum Detection	Frequency of Detection	Range of Detection Limits	Screening Level	Frequency of Exceedance	COPC Flag
78-93-3	2-Butanone	7.0E-03 J	1.2E-02 J	MG/KG	S29-SS01	2 / 6	0.004 - 0.005	2.0E+04	0 / 6	No
67-64-1	Acetone	1.4E-02 J	1.0E-01 J	MG/KG	S29-SS01	6 / 6	0.007 - 0.009	6.3E+04	0 / 6	No
71-43-2	Benzene	1.0E-03 J	1.0E-03 J	MG/KG	S29-SS01	1 / 6	0.0005 - 0.0006	5.4E+00	0 / 6	No
75-15-0	Carbon disulfide	4.0E-03 J	4.0E-03 J	MG/KG	S29-SS01	1 / 6	0.001 - 0.001	3.7E+02	0 / 6	No
110-82-7	Cyclohexane	2.0E-03 J	2.0E-03 J	MG/KG	S29-SS01	1 / 6	0.001 - 0.001	1.2E+02	0 / 6	No
108-87-2	Methylcyclohexane	2.0E-03 J	2.0E-03 J	MG/KG	S29-SS01	1 / 6	0.001 - 0.001	NA	--	NA
108-88-3	Toluene	1.0E-03 J	1.0E-03 J	MG/KG	S29-SS01	1 / 6	0.001 - 0.001	8.2E+02	0 / 6	No
91-57-6	2-Methylnaphthalene	1.2E-02 J	1.2E-02 J	MG/KG	S29-SS02	1 / 6	0.004 - 0.004	3.7E+02	0 / 6	No
208-96-8	Acenaphthylene	5.0E-03 J	1.6E-02 J	MG/KG	S29-SS02	2 / 6	0.004 - 0.004	3.3E+03	0 / 6	No
120-12-7	Anthracene	7.0E-03 J	1.0E-02 J	MG/KG	S29-SS02	2 / 6	0.004 - 0.004	1.7E+04	0 / 6	No
56-55-3	Benzo(a)anthracene	5.0E-03 J	3.3E-02	MG/KG	S29-SS02	4 / 6	0.004 - 0.004	2.1E+00	0 / 6	No
50-32-8	Benzo(a)pyrene	7.0E-03 J	5.2E-02	MG/KG	S29-SS02	4 / 6	0.004 - 0.004	2.1E-01	0 / 6	No
205-99-2	Benzo(b)fluoranthene	1.0E-02 J	7.9E-02	MG/KG	S29-SS02	4 / 6	0.004 - 0.004	2.1E+00	0 / 6	No
191-24-2	Benzo(g,h,i)perylene	7.0E-03 J	6.7E-02	MG/KG	S29-SS02	4 / 6	0.004 - 0.004	1.7E+03	0 / 6	No
207-08-9	Benzo(k)fluoranthene	5.0E-03 J	3.3E-02	MG/KG	S29-SS02	4 / 6	0.004 - 0.004	2.1E+01	0 / 6	No
218-01-9	Chrysene	6.0E-03 J	5.4E-02	MG/KG	S29-SS02	4 / 6	0.004 - 0.004	2.1E+02	0 / 6	No
53-70-3	Dibenz(a,h)anthracene	6.0E-03 J	1.7E-02 J	MG/KG	S29-SS02	2 / 6	0.004 - 0.004	2.1E-01	0 / 6	No
206-44-0	Fluoranthene	1.0E-02 J	8.4E-02	MG/KG	S29-SS02	4 / 6	0.004 - 0.004	2.2E+03	0 / 6	No
193-39-5	Indeno(1,2,3-cd)pyrene	5.0E-03 J	4.9E-02	MG/KG	S29-SS02	4 / 6	0.004 - 0.004	2.1E+00	0 / 6	No
85-01-8	Phenanthrene	5.0E-03 J	5.5E-02	MG/KG	S29-SS02	4 / 6	0.004 - 0.004	1.7E+04	0 / 6	No
108-95-2	Phenol	2.7E-02 J	2.7E-02 J	MG/KG	S29-SS01	1 / 6	0.02 - 0.021	1.8E+04	0 / 6	No
129-00-0	Pyrene	1.0E-02 J	7.2E-02	MG/KG	S29-SS02	4 / 6	0.004 - 0.004	1.7E+03	0 / 6	No
7440-38-2	Arsenic	6.8E+00	2.0E+01	MG/KG	S29-SS01	6 / 6	0.0928 - 0.0985	1.6E+00	6 / 6	Yes
7440-39-3	Barium	7.5E+01	2.2E+02	MG/KG	S29-SS02	6 / 6	0.0209 - 0.0224	1.9E+04	0 / 6	No
7440-43-9	Cadmium	1.1E+00	2.0E+00	MG/KG	S29-SS02	6 / 6	0.0232 - 0.0249	8.0E+01	0 / 6	No
7440-47-3	Chromium	2.1E+01	2.4E+01	MG/KG	S29-SS01	6 / 6	0.162 - 0.174	1.5E+05	0 / 6	No
7439-92-1	Lead	1.6E+01	6.3E+01	MG/KG	S29-SS02	6 / 6	0.255 - 0.274	8.0E+02	0 / 6	No
7439-97-6	Mercury	1.7E-02 J	3.9E-02 J	MG/KG	S29-SS02	6 / 6	0.0082 - 0.0088	3.1E+00	0 / 6	No
7782-49-2	Selenium	2.4E+00	3.6E+00	MG/KG	S29-SS01	6 / 6	0.789 - 0.847	5.1E+02	0 / 6	No

Note:
J = Estimated Value
Screening Level = USEPA Industrial Regional Screening Level (RSL) based on $1x10^{-6}$ or HQ = 0.1 (November 2011).
FOE = Frequency of Exceedance
NA = Not applicable/not available
Soil saturation value for n-hexane used as surrogate for methylcylcohexane
RSL value for acenaphthene used as surrogate for acenaphthylene
RSL value for pyrene used as surrogate for benzo(g,h,i)perylene
RSL value for anthracene used as surrogate for phenanthrene
RSL value for chromium III used as surrogate for chromium

TABLE 6-20
SWMU 29 Step 2: Risk Ratio Screening for Soil, Maximum Detected Concentration
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Surface Soil

Analyte	Maximum Detected Concentration (Qualifier)	Location of Maximum Detection	Frequency of Detection	Industrial Soil RSL	Acceptable Risk Level	Corresponding Hazard Index[a]	Corresponding Cancer Risk[b]	Target Organ/ Critical Effect
Metals (mg/kg)								
Arsenic	1.5E+01	S29-SS01	2 / 2	1.6E+00	1E-06	NA	9E-06	NA
Arsenic	1.5E+01	S29-SS01	2 / 2	2.6E+02	1E+00	0.06	NA	Skin/vascular
Cumulative Corresponding Hazard Index[c]						**0.06**		
Cumulative Corresponding Cancer Risk[d]							**9E-06**	

Total Soil

Analyte	Maximum Detected Concentration (Qualifier)	Location of Maximum Detection	Frequency of Detection	Industrial Soil RSL	Acceptable Risk Level	Corresponding Hazard Index[a]	Corresponding Cancer Risk[b]	Target Organ/ Critical Effect
Metals (mg/kg)								
Arsenic	2.0E+01	S29-SS01	6 / 6	1.6E+00	1E-06	NA	1E-05	NA
Arsenic	2.0E+01	S29-SS01	6 / 6	2.6E+02	1E+00	0.08	NA	Skin/vascular
Cumulative Corresponding Hazard Index[c]						**0.08**		
Cumulative Corresponding Cancer Risk[d]							**1E-05**	

[a] Corresponding Hazard Index equals maximum detected concentration divided by the RSL divided by the acceptable risk level.
[b] Corresponding Cancer Risk equals maximum detected concentration divided by the RSL divided by the acceptable risk level.
[c] Cumulative Corresponding Hazard Index equals sum of Corresponding Hazard Indices for each constituent.
[d] Cumulative Corresponding Cancer Risk equals sum of Corresponding Cancer Risks for each constituent.
Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites (USEPA, November 2011). [Online].
Available: http://epa-prgs.ornl.gov/chemicals/index.shtml.
HI = Hazard Index
mg/kg = milligrams per kilogram
NA = Not available/not applicable

TABLE 6-21
AOC D Step 1: Selection of Chemicals of Potential Concern
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

History:	Underground Catalyst Storage Tank

Surface Soil

CAS Number	Analyte	Minimum Detected Concentration	Maximum Detected Concentration	Units	Location of Maximum Detection	Frequency of Detection	Range of Detection Limits	Screening Level	Frequency of Exceedance	COPC Flag
95-63-6	1,2,4-Trimethylbenzene	1.0E-03 J	1.0E-03 J	MG/KG	AOD-SS01	1 / 2	0.001 - 0.049	2.6E+01	0 / 2	No
67-64-1	Acetone	4.0E-02 J	4.0E-02 J	MG/KG	AOD-SS01	1 / 2	0.008 - 0.34	6.3E+04	0 / 2	No
71-43-2	Benzene	1.0E-03 J	7.3E-02 J	MG/KG	AOD-SS02	2 / 2	0.0005 - 0.024	5.4E+00	0 / 2	No
75-15-0	Carbon disulfide	2.0E-03 J	2.0E-03 J	MG/KG	AOD-SS01	1 / 2	0.001 - 0.049	3.7E+02	0 / 2	No
110-82-7	Cyclohexane	4.0E-03 J	4.0E-03 J	MG/KG	AOD-SS01	1 / 2	0.001 - 0.049	1.2E+02	0 / 2	No
100-41-4	Ethylbenzene	2.0E-03 J	6.5E+00 J	MG/KG	AOD-SS02	2 / 2	0.001 - 0.049	2.7E+01	0 / 2	No
98-82-8	Isopropylbenzene	2.5E-01 J	2.5E-01 J	MG/KG	AOD-SS02	1 / 2	0.001 - 0.049	2.7E+02	0 / 2	No
179601-23-1	m,p-Xylene	2.0E-03 J	2.1E-01 J	MG/KG	AOD-SS02	2 / 2	0.001 - 0.049	2.5E+02	0 / 2	No
79-20-9	Methyl acetate	1.2E-01 J	1.2E-01 J	MG/KG	AOD-SS02	1 / 2	0.002 - 0.098	2.9E+04	0 / 2	No
108-87-2	Methylcyclohexane	5.0E-03 J	5.0E-03 J	MG/KG	AOD-SS01	1 / 2	0.001 - 0.049	NA	--	NA
103-65-1	n-Propylbenzene	9.9E-02 J	9.9E-02 J	MG/KG	AOD-SS02	1 / 2	0.001 - 0.049	2.6E+02	0 / 2	No
95-47-6	o-Xylene	5.6E-02 J	5.6E-02 J	MG/KG	AOD-SS02	1 / 2	0.001 - 0.049	3.0E+02	0 / 2	No
108-88-3	Toluene	3.0E-03 J	3.0E-03 J	MG/KG	AOD-SS01	1 / 2	0.001 - 0.049	8.2E+02	0 / 2	No
91-57-6	2-Methylnaphthalene	8.0E-03 J	1.9E-02	MG/KG	AOD-SS01	2 / 2	0.004 - 0.004	3.7E+02	0 / 2	No
83-32-9	Acenaphthene	5.0E-03 J	5.0E-03 J	MG/KG	AOD-SS02	1 / 2	0.004 - 0.004	3.3E+03	0 / 2	No
120-12-7	Anthracene	9.0E-03 J	9.0E-03 J	MG/KG	AOD-SS02	1 / 2	0.004 - 0.004	1.7E+04	0 / 2	No
56-55-3	Benzo(a)anthracene	1.2E-02 J	1.2E-02 J	MG/KG	AOD-SS02	1 / 2	0.004 - 0.004	2.1E+00	0 / 2	No
50-32-8	Benzo(a)pyrene	1.5E-02 J	1.5E-02 J	MG/KG	AOD-SS02	1 / 2	0.004 - 0.004	2.1E-01	0 / 2	No
205-99-2	Benzo(b)fluoranthene	1.9E-02 J	1.9E-02 J	MG/KG	AOD-SS02	1 / 2	0.004 - 0.004	2.1E+00	0 / 2	No
191-24-2	Benzo(g,h,i)perylene	1.1E-02 J	1.1E-02 J	MG/KG	AOD-SS02	1 / 2	0.004 - 0.004	1.7E+03	0 / 2	No
207-08-9	Benzo(k)fluoranthene	1.0E-02 J	1.0E-02 J	MG/KG	AOD-SS02	1 / 2	0.004 - 0.004	2.1E+01	0 / 2	No
218-01-9	Chrysene	4.0E-03 J	1.7E-02 J	MG/KG	AOD-SS02	2 / 2	0.004 - 0.004	2.1E+02	0 / 2	No
206-44-0	Fluoranthene	4.0E-02	4.0E-02	MG/KG	AOD-SS02	1 / 2	0.004 - 0.004	2.2E+03	0 / 2	No
85-01-8	Phenanthrene	1.6E-02 J	4.6E-02	MG/KG	AOD-SS02	2 / 2	0.004 - 0.004	1.7E+04	0 / 2	No
129-00-0	Pyrene	4.0E-03 J	3.4E-02	MG/KG	AOD-SS02	2 / 2	0.004 - 0.004	1.7E+03	0 / 2	No
7440-38-2	Arsenic	7.4E+00	8.5E+00	MG/KG	AOD-SS02	2 / 2	0.0835 - 0.0977	1.6E+00	2 / 2	Yes
7440-39-3	Barium	2.8E+01	1.2E+02	MG/KG	AOD-SS02	2 / 2	0.0184 - 0.022	1.9E+04	0 / 2	No
7440-43-9	Cadmium	5.4E-01	8.7E-01	MG/KG	AOD-SS02	2 / 2	0.0205 - 0.0244	8.0E+01	0 / 2	No
7440-47-3	Chromium	5.7E+00	1.5E+01	MG/KG	AOD-SS02	2 / 2	0.143 - 0.171	1.5E+05	0 / 2	No
7439-92-1	Lead	3.5E+00	1.1E+01	MG/KG	AOD-SS02	2 / 2	0.225 - 0.269	8.0E+02	0 / 2	No
7439-97-6	Mercury	1.5E-02 J	1.5E-02 J	MG/KG	AOD-SS02	1 / 2	0.0071 - 0.0082	3.1E+00	0 / 2	No

Total Soil

CAS Number	Analyte	Minimum Detected Concentration	Maximum Detected Concentration	Units	Location of Maximum Detection	Frequency of Detection	Range of Detection Limits	Screening Level	Frequency of Exceedance	COPC Flag
95-63-6	1,2,4-Trimethylbenzene	1.0E-03 J	1.0E-03 J	MG/KG	AOD-SS01	1 / 6	0.001 - 0.049	2.6E+01	0 / 6	No
67-64-1	Acetone	1.7E-02 J	5.6E-02 J	MG/KG	AOD-SS01	5 / 6	0.007 - 0.34	6.3E+04	0 / 6	No
71-43-2	Benzene	1.0E-03 J	7.3E-02 J	MG/KG	AOD-SS02	3 / 6	0.0005 - 0.024	5.4E+00	0 / 6	No
75-15-0	Carbon disulfide	2.0E-03 J	2.0E-03 J	MG/KG	AOD-SS01	1 / 6	0.001 - 0.049	3.7E+02	0 / 6	No
110-82-7	Cyclohexane	4.0E-03 J	4.0E-03 J	MG/KG	AOD-SS01	1 / 6	0.001 - 0.049	1.2E+02	0 / 6	No
100-41-4	Ethylbenzene	2.0E-03 J	6.5E+00 J	MG/KG	AOD-SS02	2 / 6	0.001 - 0.049	2.7E+01	0 / 6	No
98-82-8	Isopropylbenzene	2.5E-01 J	2.5E-01 J	MG/KG	AOD-SS02	1 / 6	0.001 - 0.049	2.7E+02	0 / 6	No
179601-23-1	m,p-Xylene	2.0E-03 J	2.1E-01 J	MG/KG	AOD-SS02	2 / 6	0.001 - 0.049	2.5E+02	0 / 6	No
79-20-9	Methyl acetate	1.2E-01 J	1.2E-01 J	MG/KG	AOD-SS02	1 / 6	0.002 - 0.098	2.9E+04	0 / 6	No
108-87-2	Methylcyclohexane	5.0E-03 J	5.0E-03 J	MG/KG	AOD-SS01	1 / 6	0.001 - 0.049	NA	--	NA
103-65-1	n-Propylbenzene	9.9E-02 J	9.9E-02 J	MG/KG	AOD-SS02	1 / 6	0.001 - 0.049	2.6E+02	0 / 6	No
95-47-6	o-Xylene	5.6E-02 J	5.6E-02 J	MG/KG	AOD-SS02	1 / 6	0.001 - 0.049	3.0E+02	0 / 6	No
108-88-3	Toluene	3.0E-03 J	3.0E-03 J	MG/KG	AOD-SS01	1 / 6	0.001 - 0.049	8.2E+02	0 / 6	No
91-57-6	2-Methylnaphthalene	8.0E-03 J	2.0E-02	MG/KG	AOD-SS01	4 / 6	0.004 - 0.004	3.7E+02	0 / 6	No
83-32-9	Acenaphthene	5.0E-03 J	5.0E-03 J	MG/KG	AOD-SS02	1 / 6	0.004 - 0.004	3.3E+03	0 / 6	No
120-12-7	Anthracene	9.0E-03 J	9.0E-03 J	MG/KG	AOD-SS02	1 / 6	0.004 - 0.004	1.7E+04	0 / 6	No
56-55-3	Benzo(a)anthracene	1.2E-02 J	1.2E-02 J	MG/KG	AOD-SS02	1 / 6	0.004 - 0.004	2.1E+00	0 / 6	No
50-32-8	Benzo(a)pyrene	1.5E-02 J	1.5E-02 J	MG/KG	AOD-SS02	1 / 6	0.004 - 0.004	2.1E-01	0 / 6	No
205-99-2	Benzo(b)fluoranthene	4.0E-03 J	1.9E-02 J	MG/KG	AOD-SS02	2 / 6	0.004 - 0.004	2.1E+00	0 / 6	No
191-24-2	Benzo(g,h,i)perylene	1.1E-02 J	1.1E-02 J	MG/KG	AOD-SS02	1 / 6	0.004 - 0.004	1.7E+03	0 / 6	No
207-08-9	Benzo(k)fluoranthene	1.0E-02 J	1.0E-02 J	MG/KG	AOD-SS02	1 / 6	0.004 - 0.004	2.1E+01	0 / 6	No
218-01-9	Chrysene	4.0E-03 J	1.7E-02 J	MG/KG	AOD-SS02	4 / 6	0.004 - 0.004	2.1E+02	0 / 6	No
206-44-0	Fluoranthene	4.0E-03 J	4.0E-02	MG/KG	AOD-SS02	2 / 6	0.004 - 0.004	2.2E+03	0 / 6	No
85-01-8	Phenanthrene	1.6E-02 J	4.6E-02	MG/KG	AOD-SS02	4 / 6	0.004 - 0.004	1.7E+04	0 / 6	No
129-00-0	Pyrene	4.0E-03 J	3.4E-02	MG/KG	AOD-SS02	4 / 6	0.004 - 0.004	1.7E+03	0 / 6	No
7440-38-2	Arsenic	4.6E+00	1.4E+01	MG/KG	AOD-SS02	6 / 6	0.0835 - 0.0977	1.6E+00	6 / 6	Yes
7440-39-3	Barium	1.9E+01	1.2E+02	MG/KG	AOD-SS02	6 / 6	0.0184 - 0.022	1.9E+04	0 / 6	No
7440-43-9	Cadmium	3.4E-01 J	1.3E+00	MG/KG	AOD-SS02	6 / 6	0.0204 - 0.0244	8.0E+01	0 / 6	No
7440-47-3	Chromium	3.7E+00	1.7E+01	MG/KG	AOD-SS02	6 / 6	0.143 - 0.171	1.5E+05	0 / 6	No
7439-92-1	Lead	2.5E+00	1.1E+01	MG/KG	AOD-SS02	6 / 6	0.224 - 0.269	8.0E+02	0 / 6	No
7439-97-6	Mercury	1.2E-02 J	1.8E-02 J	MG/KG	AOD-SS02	3 / 6	0.0071 - 0.0083	3.1E+00	0 / 6	No
7440-22-4	Silver	9.4E-01	9.4E-01	MG/KG	AOD-SS02	1 / 6	0.0846 - 0.101	5.1E+02	0 / 6	No

Note:
J = Estimated Value
Screening Level = USEPA Industrial Regional Screening Level (RSL) based on $1x10^{-6}$ or HQ = 0.1 (November 2011).
FOE = Frequency of Exceedance
NA = Not applicable/not available
RSL value for m-xylene used as surrogate for m,p-xylene.
RSL value for pyrene used as surrogate for benzo(g,h,i)perylene.
RSL value for anthracene used as surrogate for phenanthrene.
RSL value for chromium III used as surrogate for chromium.
RSL value for n-hexane used as surrogate for methylcylcohexane.

TABLE 6-22

AOC D Step 2: Risk Ratio Screening for Soil, Maximum Detected Concentration

Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Surface Soil

Analyte	Maximum Detected Concentration (Qualifier)	Location of Maximum Detection	Frequency of Detection	Industrial Soil RSL	Acceptable Risk Level	Corresponding Hazard Index[a]	Corresponding Cancer Risk[b]	Target Organ/ Critical Effect
Metals (mg/kg)								
Arsenic	8.5E+00	AOD-SS02	2 / 2	1.6E+00	1E-06	NA	5E-06	NA
Arsenic	8.5E+00	AOD-SS02	2 / 2	2.6E+02	1E+00	0.03	NA	Skin/vascular
Cumulative Corresponding Hazard Index[c]						**0.03**		
Cumulative Corresponding Cancer Risk[d]							**5E-06**	

Total Soil

Analyte	Maximum Detected Concentration (Qualifier)	Location of Maximum Detection	Frequency of Detection	Industrial Soil RSL	Acceptable Risk Level	Corresponding Hazard Index[a]	Corresponding Cancer Risk[b]	Target Organ/ Critical Effect
Metals (mg/kg)								
Arsenic	1.4E+01	AOD-SS02	6 / 6	1.6E+00	1E-06	NA	9E-06	NA
Arsenic	1.4E+01	AOD-SS02	6 / 6	2.6E+02	1E+00	0.05	NA	Skin/vascular
Cumulative Corresponding Hazard Index[c]						**0.05**		
Cumulative Corresponding Cancer Risk[d]							**9E-06**	

[a] Corresponding Hazard Index equals maximum detected concentration divided by the RSL divided by the acceptable risk level.

[b] Corresponding Cancer Risk equals maximum detected concentration divided by the RSL divided by the acceptable risk level.

[c] Cumulative Corresponding Hazard Index equals sum of Corresponding Hazard Indices for each constituent.

[d] Cumulative Corresponding Cancer Risk equals sum of Corresponding Cancer Risks for each constituent.

Regional Screening Levels (RSLs) for Chemical Contaminants at Superfund Sites (USEPA, November 2011). [Online].
Available: http://epa-prgs.ornl.gov/chemicals/index.shtml.

HI = Hazard Index

mg/kg = milligrams per kilogram

NA = Not available/not applicable

TABLE 6-23

Summary of Cumulative Cancer Risks and Noncancer HIs for Soil and Sediment

Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

SWMU/AOC	Sediment				Surface Soil[1]				Subsurface Soil[1]			
	Cumulative Cancer Risk	Significant Contributors to Cumulative Cancer Risk[2]	Cumulative Noncancer HI	Significant Contributors to Cumulative Noncancer HI[2]	Cumulative Cancer Risk	Significant Contributors to Cumulative Cancer Risk[2]	Cumulative Noncancer HI	Significant Contributors to Cumulative Noncancer HI[2]	Cumulative Cancer Risk	Significant Contributors to Cumulative Cancer Risk[2]	Cumulative Noncancer HI	Significant Contributors to Cumulative Noncancer HI[2]
1	--	--	--	--	2E-05	Benzo(a)pyrene (11%), Benzo(b)fluoranthene (17%), Benzo(k)fluoranthene (5%), Chrysene (10%), Indeno(1,2,3-cd)pyrene (8%), Arsenic (47%)	0.06		2E-05	Benzo(a)pyrene (11%), Benzo(b)fluoranthene (16%), Benzo(k)fluoranthene (5%), Chrysene (10%), Indeno(1,2,3-cd)pyrene (8%), Arsenic (48%)	0.07	
11	--	--	--	--	9E-06	Arsenic (100%)	0.05		1E-05	Arsenic (100%)	0.06	
12	--	--	--	--	8E-06	Arsenic (100%)	0.05		8E-06	Arsenic (100%)	0.05	
15	--	--	--	--	3E-05	Benzo(a)pyrene (15%), Benzo(b)fluoranthene (21%), Benzo(k)fluoranthene (9%), Chrysene (14%), Indeno(1,2,3-cd)pyrene (11%), Arsenic (21%)	0.04		3E-05	Benzo(a)pyrene (15%), Benzo(b)fluoranthene (20%), Benzo(k)fluoranthene (9%), Chrysene (14%), Indeno(1,2,3-cd)pyrene (10%), Arsenic (29%)	0.05	
17	7E-06	Arsenic (100%)	0.04		9E-06	Arsenic (100%)	0.05		9E-06	Arsenic (100%)	0.05	
18	1E-05	Arsenic (100%)	0.06		--	--	--	--	--	--	--	--
19	--	--	--	--	8E-06	Arsenic (100%)	0.05		8E-06	Arsenic (100%)	0.05	
24	--	--	--	--	2E-05	Arsenic (100%)	0.06		3E-05	Arsenic (100%)	0.07	
25-28	--	--	--	--	3E-05	Arsenic (100%)	0.2		3E-05	Arsenic (100%)	0.5	
29	--	--	--	--	9E-06	Arsenic (100%)	0.06		1E-05	Arsenic (100%)	0.08	
AOC D	--	--	--	--	5E-06	Arsenic (100%)	0.03		9E-06	Arsenic (100%)	0.05	

[1] Surface soil and subsurface soil represent the 0-2 feet and 0-10 feet below ground surface sample depth intervals, respectively. Results for SWMU 18 are for sediment only.

[2] Significant contributors to cumulative cancer risk and cumulative noncancer HI are presented for chemicals of potential concern with cancer risks of 1E-06 or greater and for those with noncancer HIs of 1 or greater.

HI = Hazard Index (noncancer)

-- = Medium not sampled

TABLE 7-1

Determination of Need for Ecological Risk Assessment

Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Site	Question 1: Are habitats and biota present onsite or directly adjacent?	Question 1: Where/Habitat Type	Question 2: Are exposure pathways potentially complete?	Question 3: Should the ecological risk assessment (ERA) process continue?
SWMU 1 - Former Flaring Pad	No			No
SWMU 11 - Satellite Accumulation Area - Ethafoam Plant	No			No
SWMU 12 - Former Methylene Chloride Cleaning Tank	No			No
SWMU 15 - Two-Section Septic Tank System	No			No
SWMU 17 - Stormwater Drainage System	Yes	onsite/aquatic	Yes	Yes
SWMU 18 - Drainage Ditch to Big Thief Creek	Yes	onsite/aquatic	Yes	Yes
SWMU 19 - Drainage Ditch to North	Yes	onsite/Terrestrial	Yes	Yes
SWMU 25 - 28 - Former Wastewater Treatment System	Yes	adjacent/terrestrial (grassland)	No	No
SWMU 29 - Former Used Filter Sand Pile	Yes	onsite/terrestrial (grassland)	Yes	Yes
SWMU 36 - Former 250-gallon Pressurized Sotrage Tank	Yes	adjacent/aquatic (fire pond)	No	No
SWMU 37 - Fire Protection Collection Basin	Yes	onsite/Aquatic (collection basin)	No	No
AOC D - Underground Catalyst Storage Tank	No			No

TABLE 7-2

List of Sample Used for the Ecological Risk Assessment

Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Site	Station ID	Sample ID	Depth (feet)	Analytical Paremeters			
				Collection Date	VOCs	SVOCs	Metals
SWMU-17 (surface soil)	S17-SS01	S17-SS01-0002	0 - 2	12/13/2011	X	X	X
	S17-SS02	S17-SS02-0002	0 - 2	12/14/2011	X	X	X
	S17-SS03	S17-SS03-0003	0 - 2	12/8/2011	X	X	X
SWMU-17 (surface sediment)	S17-SD01	S17-SD01	0 - 0.5	1/18/2012	X	X	X
SWMU-18 (surface sediment)	S18-SD01	S18-SD01	0 - 0.5	1/18/2012	X	X	X
	S18-SD02	S18-SD02	0 - 0.5	1/18/2012	X	X	X
		HGR-011812-FD02	0 - 0.5	duplicate	X	X	X
	S18-SD03	S18-SD03	0 - 0.5	1/18/2012	X	X	X
	S18-SD04	S18-SD04	0 - 0.5	1/18/2012	X	X	X
	S18-SD05	S18-SD05	0 - 0.5	1/18/2012	X	X	X
SWMU-19 (surface soil)	S19-SD01	S19-SS01-0002	0 - 2	12/13/2011	X	X	X
	S19-SD02	S19-SS02-0002	0 - 2	12/13/2011	X	X	X
SWMU-29 (surface soil)	S29-SS01	S29-SS01-0002	0 - 1	12/8/2011	X	X	X
	S29-SS02	S29-SS02-0002	0 - 1	12/8/2011	X	X	X

TABLE 7-3

Assessment Endpoints, Risk Hypotheses, and Measurement Endpoints

Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Assessment Endpoint	Risk Hypothesis	Measurement Endpoint	Receptor
Terrestrial Habitats			
Survival, growth, and reproduction of terrestrial soil invertebrate communities	Are site related COPC concentrations in surface soils sufficient to adversely affect soil invertebrate communities?	Comparison of constituent concentrations in surface soils with soil screening values	Soil invertebrates (earthworms)
Survival, growth, and reproduction of terrestrial plant communities	Are site-related COPC concentrations in surface soils sufficient to adversely affect terrestrial plant communities?	Comparison of constituent concentrations in surface soils with soil screening values	Terrestrial plants
Survival, growth, and reproduction of terrestrial reptile populations	Are site-related COPC concentrations in surface soil sufficient to adversely affect terrestrial reptile populations?	Comparison of constituent concentrations in surface soils with soil screening values	Reptiles
	Are Facility-related constituent concentrations in surface soil sufficient to cause adverse effects (on growth, survival, or reproduction) to terrestrial reptile populations?	Evidence of potential risk to other upper trophic level terrestrial receptors evaluated in the ERA	
Survival, growth, and reproduction of avian terrestrial herbivore populations	Are site-related constituent concentrations in surface soils sufficient to cause adverse effects (on growth, survival, or reproduction) to avian receptor populations that may consume terrestrial plants from the site?	Comparison of modeled dietary intakes using surface soil concentrations with literature-based ingestion screening values; ratios >1 based upon the NOAEL-LOAEL range indicate an effect	Mourning dove
Survival, growth, and reproduction of avian terrestrial insectivore populations	Are site-related COPC concentrations in surface soils sufficient to cause adverse effects (on growth, survival, or reproduction) to avian receptor populations that may consume terrestrial plants and soil invertebrates from the site?	Comparison of modeled dietary intakes using surface soil concentrations with literature-based ingestion screening values; ratios >1 based upon the NOAEL-LOAEL range indicate an effect	American robin
Survival, growth, and reproduction of avian terrestrial carnivore populations	Are site-related COPC concentrations in surface soils sufficient to cause adverse effects (on growth, survival, or reproduction) to avian receptor populations that may consume small mammals from the site?	Comparison of modeled dietary intakes using surface soil concentrations with literature-based ingestion screening values; ratios >1 based upon the NOAEL-LOAEL range indicate an effect	Red-tailed hawk
Survival, growth, and reproduction of mammalian terrestrial herbivore populations	Are site-related COPC concentrations in surface soils sufficient to cause adverse effects (on growth, survival, or reproduction) to mammalian receptor populations that may consume terrestrial plants from the site?	Comparison of modeled dietary intakes using surface soil concentrations with literature-based ingestion screening values; ratios >1 based upon the NOAEL-LOAEL range indicate an effect	White-tailed deer

TABLE 7-3

Assessment Endpoints, Risk Hypotheses, and Measurement Endpoints

Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Assessment Endpoint	Risk Hypothesis	Measurement Endpoint	Receptor
Survival, growth, and reproduction of mammalian terrestrial invertivore populations	Are site-related COPC concentrations in surface soils sufficient to cause adverse effects (on growth, survival, or reproduction) to mammalian receptor populations that may consume soil invertebrates from the site?	Comparison of modeled dietary intakes using surface soil concentrations with literature-based ingestion screening values; ratios >1 based upon the NOAEL-LOAEL range indicate an effect	Short-tailed shrew
Survival, growth, and reproduction of mammalian terrestrial omnivore populations	Are site-related COPC concentrations in surface soils sufficient to cause adverse effects (on growth, survival, or reproduction) to mammalian receptor populations that may consume terrestrial plants and soil invertebrates from the site?	Comparison of modeled dietary intakes using surface soil concentrations with literature-based ingestion screening values; ratios >1 based upon the NOAEL-LOAEL range indicate an effect	White-footed mouse
Survival, growth, and reproduction of mammalian terrestrial carnivore populations	Are site-related COPC constituent concentrations in surface soils sufficient to cause adverse effects (on growth, survival, or reproduction) to mammalian receptor populations that may consume small mammals from the site?	Comparison of modeled dietary intakes using surface soil concentrations with literature-based ingestion screening values; ratios >1 based upon the NOAEL-LOAEL range indicate an effect	Red fox
Aquatic Habitats			
Survival, growth, and reproduction of aquatic and benthic invertebrate communities	Are site-related COPC concentrations in sediment sufficient to adversely affect aquatic and benthic invertebrate communities?	Comparison of constituent concentrations in sediment with medium-specific screening values	Aquatic and benthic invertebrates
Survival, growth, and reproduction of aquatic plant communities	Are site-related COPC concentrations in sediment sufficient to adversely affect aquatic plant communities?	Comparison of constituent concentrations in sediment with medium-specific screening values	Aquatic and wetland plants
Survival, growth, and reproduction of amphibian populations	Are site-related constituent concentrations in sediment sufficient to cause adverse effects (on growth, survival, or reproduction) to amphibian populations?	Comparison of constituent concentrations in sediment with medium-specific screening values Evidence of potential risk to other upper trophic level aquatic receptors evaluated in the ERA	Amphibians
Survival, growth, and reproduction of aquatic reptile populations	Are site-related COPC concentrations in sediment sufficient to cause adverse effects (on growth, survival, or reproduction) to aquatic reptile populations?	Comparison of constituent concentrations in sediment with medium-specific screening values Evidence of potential risk to other upper trophic level aquatic receptors evaluated in the ERA	Reptiles

TABLE 7-3

Assessment Endpoints, Risk Hypotheses, and Measurement Endpoints

Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Assessment Endpoint	Risk Hypothesis	Measurement Endpoint	Receptor
Survival, growth, and reproduction of avian aquatic omnivore populations	Are Site-related COPC concentrations in sediment sufficient to cause adverse effects (on growth, survival, or reproduction) to avian receptor populations that may consume aquatic/wetland prey from the site?	Comparison of modeled dietary intakes using sediment concentrations with literature-based ingestion screening values; ratios >1 based upon the NOAEL-LOAEL range indicate an effect	Marsh wren
Survival, growth, and reproduction of mammalian aquatic omnivore populations	Are Site-related COPC concentrations in sediment sufficient to cause adverse effects (on growth, survival, or reproduction) to mammalian receptor populations that may consume aquatic/wetland prey from the site?	Comparison of modeled dietary intakes using sediment concentrations with literature-based ingestion screening values; ratios >1 based upon the NOAEL-LOAEL range indicate an effect	Raccoon
Survival, growth, and reproduction of avian aquatic herbivore populations	Are Site-related COPC concentrations in sediment sufficient to cause adverse effects (on growth, survival, or reproduction) to avian receptor populations that may consume aquatic plants from the site?	Comparison of modeled dietary intakes using sediment concentrations with literature-based ingestion screening values; ratios >1 based upon the NOAEL-LOAEL range indicate an effect	Mallard duck
Survival, growth, and reproduction of mammalian aquatic herbivore populations	Are Site-related COPC concentrations in sediment sufficient to cause adverse effects (on growth, survival, or reproduction) to mammalian receptor populations that may consume aquatic plants from the site?	Comparison of modeled dietary intakes using sediment concentrations with literature-based ingestion screening values; ratios >1 based upon the NOAEL-LOAEL range indicate an effect	Muskrat

TABLE 7-4

Soil Bioconcentration Factors For Plants and Soil Invertebrates

Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Chemical	Soil-Plant BCF (dry weight)		Soil-Invertebrate BAF (dry weight)	
	Value	Reference	Value	Reference
Inorganics				
Arsenic	0.037	Bechtel Jacobs 1998a	0.258	Sample et al. 1998a
Chromium	0.048	Bechtel Jacobs 1998a	0.320	Sample et al. 1998a
Selenium	0.567	Bechtel Jacobs 1998a	0.982	Sample et al. 1998a
Semivolatile Organics				
Acenaphthylene	0.1653	Travis and Arms 1988	0.22	Beyer and Stafford 1993
Benzo(a)anthracene	0.0197	Travis and Arms 1988	0.27	Beyer and Stafford 1993
Benzo(a)pyrene	0.0114	Travis and Arms 1988	0.34	Beyer and Stafford 1993
Benzo(b)fluoranthene	0.0101	Travis and Arms 1988	0.21	Beyer and Stafford 1993
Benzo(g,h,i)perylene	0.0052	Travis and Arms 1988	0.15	Beyer and Stafford 1993
Benzo(k)fluoranthene	0.0101	Travis and Arms 1988	0.21	Beyer and Stafford 1993
Chrysene	0.0197	Travis and Arms 1988	0.44	Beyer and Stafford 1993
Dibenz(a,h)anthracene	0.0053	Travis and Arms 1988	0.49	Beyer and Stafford 1993
Fluoranthene	0.0425	Travis and Arms 1988	0.37	Beyer and Stafford 1993
Fluorene	0.1428	Travis and Arms 1988	0.20	Beyer and Stafford 1993
Indeno(1,2,3-cd)pyrene	0.0056	Travis and Arms 1988	0.41	Beyer and Stafford 1993
Phenanthrene	0.0908	Travis and Arms 1988	0.28	Beyer and Stafford 1993
Pyrene	0.0431	Travis and Arms 1988	0.39	Beyer and Stafford 1993
Soil Bioaccumulation Factors For Small Mammals				
Chemical	**Soil-Mouse BAF (dry weight)**		**Soil-Shrew BAF (dry weight)**	
	Value	**Reference**	**Value**	**Reference**
Inorganics				
Arsenic	0.003	Sample et al. 1998b	0.004	Sample et al. 1998b
Chromium	0.092	Sample et al. 1998b	0.094	Sample et al. 1998b
Selenium	0.258	Sample et al. 1998b	0.273	Sample et al. 1998b
Semivolatile Organics				
Acenaphthylene	--	see text	--	see text
Benzo(a)anthracene	--	see text	--	see text
Benzo(a)pyrene	--	see text	--	see text
Benzo(b)fluoranthene	--	see text	--	see text
Benzo(g,h,i)perylene	--	see text	--	see text
Benzo(k)fluoranthene	--	see text	--	see text

TABLE 7-4

Soil Bioconcentration Factors For Plants and Soil Invertebrates

Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Chemical	Soil-Plant BCF (dry weight)		Soil-Invertebrate BAF (dry weight)	
	Value	Reference	Value	Reference
Chrysene	--	see text	--	see text
Dibenz(a,h)anthracene	--	see text	--	see text
Fluoranthene	--	see text	--	see text
Fluorene	--	see text	--	see text
Indeno(1,2,3-cd)pyrene	--	see text	--	see text
Phenanthrene	--	see text	--	see text
Pyrene	--	see text	--	see text

TABLE 7-5
Sediment Bioaccumulation Factors For Benthic Invertebrates and Fish
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

	Sediment-Invertebrate BAF (dry weight)		Sediment-Fish BAF (dry weight)	
Chemical	**Value**	**Reference**	**Value**	**Reference**
Inorganics				
Arsenic	0.466	Bechtel Jacobs 1998b	0.126	Pascoe et al. 1996
Chromium	0.083	Bechtel Jacobs 1998b	0.038	Krantzberg and Boyd 1992
Selenium	1.000	--	1.000	--
Semivolatile Organics				
Acenaphthylene	2.040	Acenaphthene value	1.000	--
Benzo(a)anthracene	0.358	Maruya et al. 1997	1.000	--
Benzo(a)pyrene	0.127	Maruya et al. 1997	1.000	--
Benzo(b)fluoranthene	0.150	Maruya et al. 1997	1.000	--
Benzo(g,h,i)perylene	0.215	Maruya et al. 1997	1.000	--
Benzo(k)fluoranthene	0.232	Maruya et al. 1997	1.000	--
Chrysene	0.198	Maruya et al. 1997	1.000	--
Dibenz(a,h)anthracene	0.191	Anthracene value	1.000	--
Fluoranthene	0.212	Maruya et al. 1997	1.000	--
Fluorene	0.481	Maruya et al. 1997	1.000	--
Indeno(1,2,3-cd)pyrene	0.173	Maruya et al. 1997	1.000	--
Phenanthrene	0.294	Maruya et al. 1997	1.000	--
Pyrene	0.435	Maruya et al. 1997	1.000	--
Sediment Bioaccumulation Factors For Aquatic Plants and Frogs				
	Sediment-Plant BCF (dry weight)		**Sediment-Frog BAF (dry weight)**	
Chemical	**Value**	**Reference**	**Value**	**Reference**
Inorganics				
Arsenic	0.037	Bechtel Jacobs 1998a	0.126	Pascoe et al. 1996
Chromium	0.048	Bechtel Jacobs 1998a	0.038	Krantzberg and Boyd 1992
Selenium	0.567	Bechtel Jacobs 1998a	1.000	--
Semivolatile Organics				
Acenaphthylene	0.1653	Travis and Arms 1988	1.000	--
Benzo(a)anthracene	0.0197	Travis and Arms 1988	1.000	--
Benzo(a)pyrene	0.0114	Travis and Arms 1988	1.000	--
Benzo(b)fluoranthene	0.0101	Travis and Arms 1988	1.000	--
Benzo(g,h,i)perylene	0.0052	Travis and Arms 1988	1.000	--
Benzo(k)fluoranthene	0.0101	Travis and Arms 1988	1.000	--
Chrysene	0.0197	Travis and Arms 1988	1.000	--
Dibenz(a,h)anthracene	0.0053	Travis and Arms 1988	1.000	--
Fluoranthene	0.0425	Travis and Arms 1988	1.000	--
Fluorene	0.1428	Travis and Arms 1988	1.000	--
Indeno(1,2,3-cd)pyrene	0.0056	Travis and Arms 1988	1.000	--
Phenanthrene	0.0908	Travis and Arms 1988	1.000	--
Pyrene	0.0431	Travis and Arms 1988	1.000	--

TABLE 7-6
Exposure Parameters for Upper Trophic Level Ecological Receptors
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Receptor	Body Weight (kg)		Water Ingestion Rate (L/day)		Food Ingestion Rate (kg/day - dry)	
	Value	Reference	Value	Reference	Value	Reference
Birds						
American robin	0.077	USEPA 1993a	0.0106	allometric equation	0.0055	Levey and Karasov 1989
Mallard	1.18	Bellrose 1980	0.0658	allometric equation	0.0647	allometric equation
Marsh wren	0.011	Dunning 1993	0.0029	allometric equation	0.0025	USEPA 1993a
Mourning dove	0.127	Tomlinson et al. 1994	0.0148	allometric equation	0.0151	allometric equation
Red-tailed hawk	1.13	Sample and Suter 1994	0.0639	allometric equation	0.0360	Sample and Suter 1994
Mammals						
Muskrat	1.17	Silva and Downing 1995	0.1139	allometric equation	0.0596	USEPA 1993a
Red fox	4.06	Silva and Downing 1995	0.3494	allometric equation	0.1231	Sample and Suter 1994
Short-tailed shrew	0.017	USEPA 1993a	0.0038	USEPA 1993a	0.0015	USEPA 1993a
White-footed mouse	0.021	Silva and Downing 1995	0.0062	Sample and Suter 1994	0.0005	Sample and Suter 1994
White-tailed deer	52.9	Silva and Downing 1995	3.5216	allometric equation	0.2610	Sample and Suter 1994

TABLE 7-6

Exposure Parameters for Upper Trophic Level Ecological Receptors

Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Receptor	Dietary Composition (percent)							Soil/ Sediment Ingestion (percent)	
	Terr. Plants	Soil Invert.	Small Mammals	Fish/ Frogs	Aquatic Plants	Benthic Invert.	Reference	Value	Reference
Birds									
American robin	51.9	43.5	0	0	0	0	Martin et al. 1951	4.6	Sample and Suter 1994
Mallard	0	0	0	0	86.7	10.0	Palmer 1976	3.3	Beyer et al. 1994
Marsh wren	0	0	0	0	0	95.0	USEPA 1993a	5.0	Assumed based on diet
Mourning dove	95.0	0	0	0	0	0	Tomlinson et al. 1994	5.0	Assumed based on diet
Red-tailed hawk	0	0	100	0	0	0	USEPA 1993a; Sample and Suter 1994	0	Sample and Suter 1994
Mammals									
Muskrat	0	0	0	0	90.6	0	USEPA 1993a	9.4	Beyer et al. 1994 (raccoon)
Red fox	7.0	2.8	87.4	0	0	0	USEPA 1993a	2.8	Beyer et al. 1994
Short-tailed shrew	4.7	82.3	0	0	0	0	USEPA 1993a; Sample and Suter 1994	13.0	Sample and Suter 1994
White-footed mouse	51.0	47.0	0	0	0	0	Martin et al. 1951; Sample and Suter 1994	2.0	Beyer et al. 1994
White-tailed deer	98.0	0	0	0	0	0	Sample and Suter 1994	2.0	Beyer et al. 1994

TABLE 7-7

Soil and Sediment Screening Values--Direct Exposure

Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Analyte Name	Screening Value	Reference
Inorganics (MG/KG)		
Arsenic	18.0	USEPA Eco-SSL
Barium	330	USEPA Eco-SSL
Cadmium	32.0	USEPA Eco-SSL
Chromium, total	0.40	USEPA Region 5 ESL
Lead	120	USEPA Eco-SSL
Mercury	0.10	USEPA Region 5 ESL
Selenium	0.52	USEPA Eco-SSL
Silver	560	USEPA Eco-SSL
Semivolatile Organic Compounds (MG/KG)		
Acenaphthene	20.0	Efroymson et al., 1997a; plant benchmark
Acenaphthylene	682	USEPA Region 5 ESL
Anthracene	1,480	USEPA Region 5 ESL
Benz(a)anthracene	5.21	USEPA Region 5 ESL
Benzidine	NSV	--
Benzo(a)pyrene	1.52	USEPA Region 5 ESL
Benzo(b)fluoranthene	59.8	USEPA Region 5 ESL
Benzo(ghi)perylene	119	USEPA Region 5 ESL
Benzo(k)fluoranthene	148	USEPA Region 5 ESL
Benzoic acid	NSV	--
Benzyl alcohol	NSV	--
Bis(2-chloroethoxy) methane	0.30	USEPA Region 5 ESL
Bis(2-chloroethyl) ether	23.7	USEPA Region 5 ESL
Bis(2-chloroisopropyl) ether	NSV	
Bis(2-ethylhexyl) phthalate	0.93	USEPA Region 5 ESL
Bis(chloroisopropyl) ether	19.4	USEPA Region 5 ESL
Bromophenyl phenyl ether, 4-	NSV	--
Butylbenzyl phthalate	NSV	--
Carbazole	NSV	--
Chloroaniline, 4-	20.0	Efroymson et al., 1997a; Plant PRG for 3-Chloroaniline
Chloronaphthalene, 2-	NSV	--
Chlorophenol, 2-	7.00	Efroymson et al., 1997a; Earthworm PRG for 2-chlorophenol
Chlorophenyl phenyl ether, 4-	NSV	--
Chrysene	4.73	USEPA Region 5 ESL
Dibenz(ah)anthracene	18.4	USEPA Region 5 ESL
Dibenzofuran	NSV	--
Dichlorobenzene, 1,2-	20.0	Efroymson et al., 1997a; Earthworm PRG for 1,4-dichlorobenzene
Dichlorobenzene, 1,3-	20.0	Efroymson et al., 1997a; Earthworm PRG for 1,4-dichlorobenzene
Dichlorobenzene, 1,4-	20.0	Efroymson et al., 1997a; Earthworm PRG for 1,4-dichlorobenzene
Dichlorobenzidine, 3,3'-	0.65	--
Dichlorophenol, 2,4-	20.0	Efroymson et al., 1997a; Earthworm, plant PRG for 3,4-dichlorophenol
Diethyl phthalate	100	Efroymson et al., 1997a; Plant PRG
Dimethyl phthalate	734	USEPA Region 5 ESL
Dimethylphenol, 2,4-	0.010	USEPA Region 5 ESL
Di-n-butyl phthalate	0.15	USEPA Region 5 ESL
Dinitro-2-methylphenol, 4,6-	NSV	--
Dinitrophenol, 2,4-	20.0	Efroymson et al., 1997a; Plant PRG
Di-n-octyl phthalate	NSV	--
Fluoranthene	122	USEPA Region 5 ESL
Fluorene	30.0	Efroymson et al., 1997b; earthworm benchmark
Hexachlorobenzene	NSV	--
Hexachlorobutadiene	NSV	--
Hexachlorocyclopentadiene	NSV	--
Hexachloroethane	NSV	--
Indeno(1,2,3-cd)pyrene	109	USEPA Region 5 ESL
Isophorone	NSV	--
Methylnaphthalene, 2-	3.24	USEPA Region 5 ESL
Methylphenol, 2-	NSV	--
Methylphenol, 3- and/or 4-	NSV	--

TABLE 7-7

Soil and Sediment Screening Values--Direct Exposure

Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Analyte Name	Screening Value	Reference
Methylphenol, 4-	NSV	--
Methylphenol, 4-chloro-3-	NSV	--
Naphthalene	0.099	USEPA Region 5 ESL
Nitroaniline, 2-	74.1	USEPA Region 5 ESL
Nitroaniline, 3-	3.16	USEPA Region 5 ESL
Nitroaniline, 4-	21.9	USEPA Region 5 ESL
Nitrophenol, 2-	1.60	USEPA Region 5 ESL
Nitrophenol, 4-	7.00	Efroymson et al., 1997a; Earthworm PRG
Nitrosodi-N-propylamine, N-	NSV	--
Nitrosodiphenylamine, N-	0.55	USEPA Region 5 ESL
Pentachlorophenol	3.00	Efroymson et al., 1997a; Plant PRG
Phenanthrene	45.7	USEPA Region 5 ESL
Phenol	30.0	Efroymson et al., 1997a; Earthworm PRG
Pyrene	45.7	USEPA Region 5 ESL
Trichlorobenzene, 1,2,3-	20.0	Efroymson et al., 1997a; Earthworm PRG
Trichlorobenzene, 1,2,4-	20.0	Efroymson et al., 1997a; Earthworm PRG
Trichlorophenol, 2,4,5-	9.00	Efroymson et al., 1997a; Earthworm PRG
Trichlorophenol, 2,4,6-	4.00	Efroymson et al., 1997a; Plant PRG
Total Low Molecular Weight PAHs	29	USEPA Eco-SSL
Total High Molecular Weight PAHs	18	USEPA Eco-SSL
Volatile Organic Compounds (MG/KG)		
Acetone	2.50	USEPA Region 5 ESL
Benzene	0.26	USEPA Region 5 ESL
Bromobenzene	NSV	--
Bromochloromethane	NSV	--
Bromodichloromethane	0.54	USEPA Region 5 ESL
Bromoform	15.9	USEPA Region 5 ESL
Bromomethane	NSV	--
Butylbenzene, 1-	NSV	--
Butylbenzene, sec-	NSV	--
Butylbenzene, tert-	NSV	--
Carbon disulfide	0.094	USEPA Region 5 ESL
Carbon tetrachloride	2.98	USEPA Region 5 ESL
Chlorobenzene	40.0	Efroymson et al., 1997a; Earthworm PRG
Chloroethane	NSV	--
Chloroform	1.19	USEPA Region 5 ESL
Chloromethane	NSV	--
Chlorotoluene, 2-	NSV	--
Chlorotoluene, 4-	NSV	--
Dibromochloromethane	2.05	USEPA Region 5 ESL
Dibromochloropropane	0.035	USEPA Region 5 ESL
Dichlorodifluoromethane	39.5	USEPA Region 5 ESL
Dichloroethane, 1,1-	20.1	USEPA Region 5 ESL
Dichloroethane, 1,2-	21.2	USEPA Region 5 ESL
Dichloroethene, 1,1-	8.28	USEPA Region 5 ESL
Dichloroethene, 1,2-, cis-	0.78	USEPA Region 5 ESL
Dichloroethene, 1,2-, trans-	0.78	USEPA Region 5 ESL
Dichloroethenes, 1,2-, total	NSV	--
Dichloropropane, 1,2-	32.7	USEPA Region 5 ESL
Dichloropropane, 1,3-	32.7	USEPA Region 5 ESL
Dichloropropane, 2,2-	32.7	USEPA Region 5 ESL
Dichloropropene, 1,1-	0.40	USEPA Region 5 ESL
Dichloropropene, 1,3-, cis-	0.40	USEPA Region 5 ESL
Dichloropropene, 1,3-, trans-	0.40	USEPA Region 5 ESL
Ethylbenzene	5.16	USEPA Region 5 ESL
Ethylene dibromide	NSV	--
Isopropylbenzene	NSV	--
Isopropyltoluene, 4-	NSV	--
Methyl ethyl ketone	89.6	USEPA Region 5 ESL

TABLE 7-7

Soil and Sediment Screening Values--Direct Exposure

Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Analyte Name	Screening Value	Reference
Methyl isobutyl ketone	NSV	--
Methyl n-butyl ketone	NSV	--
Methyl tert-butyl ether	NSV	--
Methylene bromide	65.0	USEPA Region 5 ESL
Methylene chloride	4.05	USEPA Region 5 ESL
Propylbenzene, 1-	NSV	--
Styrene	4.69	USEPA Region 5 ESL
Tetrachloroethane, 1,1,1,2-	0.13	USEPA Region 5 ESL
Tetrachloroethane, 1,1,2,2-	0.13	USEPA Region 5 ESL
Tetrachloroethene	9.92	USEPA Region 5 ESL
Toluene	5.45	USEPA Region 5 ESL
Trichloroethane, 1,1,1-	29.8	USEPA Region 5 ESL
Trichloroethane, 1,1,2-	28.6	USEPA Region 5 ESL
Trichloroethene	12.4	USEPA Region 5 ESL
Trichlorofluoromethane	16.4	USEPA Region 5 ESL
Trichloropropane, 1,2,3-	3.36	USEPA Region 5 ESL
Trimethylbenzene, 1,2,4-	NSV	--
Trimethylbenzene, 1,3,5-	NSV	--
Vinyl chloride	0.65	USEPA Region 5 ESL
Xylene, 1,2-	NSV	--
Xylene, 1,3- and/or 1,4-	NSV	--
Xylenes, total	10.0	USEPA Region 5 ESL

TABLE 7-8

Sediment Screening Values--Direct Exposure

Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

AnalyteName	Screening Value	Reference
Inorganics (MG/KG)		
Arsenic	9.8	USEPA Region 5 ESL
Barium	NSV	
Cadmium	0.9	USEPA Region 5 ESL
Chromium, Total	43.4	USEPA Region 5 ESL
Lead	35.8000	USEPA Region 5 ESL
Mercury	0.174	USEPA Region 5 ESL
Selenium	2	USEPA Region 3 BTAG
Silver	0.5	USEPA Region 5 ESL
Semivolatile Organic Compounds (MG/KG)		
Acenaphthene	0.0061	USEPA Region 5 ESL
Acenaphthylene	0.0059	USEPA Region 5 ESL
Anthracene	0.0572	USEPA Region 5 ESL
Benz(a)anthracene	0.108	USEPA Region 5 ESL
Benzo(a)pyrene	0.15	USEPA Region 5 ESL
Benzo(b)fluoranthene	10.4	USEPA Region 5 ESL
Benzo(ghi)perylene	0.17	USEPA Region 5 ESL
Benzo(k)fluoranthene	0.24	USEPA Region 5 ESL
Bis(2-chloroethoxy) methane	NSV	
Bis(2-chloroethyl) ether	3.52	USEPA Region 5 ESL
Bis(2-ethylhexyl) phthalate	0.182	USEPA Region 5 ESL
Bis(chloroisopropyl) ether	NSV	
Bromophenyl phenyl ether, 4-	NSV	
Butylbenzyl phthalate	1.97	USEPA Region 5 ESL
Carbazole	NSV	
Chloroaniline, 4-	0.15	USEPA Region 5 ESL
Chloronaphthalene, 2-	0.42	USEPA Region 5 ESL
Chlorophenol, 2-	0.032	USEPA Region 5 ESL
Chlorophenyl phenyl ether, 4-	NSV	
Chrysene	0.166	USEPA Region 5 ESL
Dibenz(ah)anthracene	0.033	USEPA Region 5 ESL
Dibenzofuran	0.45	USEPA Region 5 ESL
Dichlorobenzene, 1,2-	0.29	USEPA Region 5 ESL
Dichlorobenzene, 1,3-	1.32	USEPA Region 5 ESL
Dichlorobenzene, 1,4-	0.32	USEPA Region 5 ESL
Dichlorobenzidine, 3,3'-	0.13	USEPA Region 5 ESL
Dichlorophenol, 2,4-	0.082	USEPA Region 5 ESL
Diethyl phthalate	0.30	USEPA Region 5 ESL
Dimethyl phthalate	NSV	USEPA Region 5 ESL
Dimethylphenol, 2,4-	0.30	USEPA Region 5 ESL
Di-n-butyl phthalate	1.11	USEPA Region 5 ESL
Dinitro-2-methylphenol, 4,6-	NSV	USEPA Region 5 ESL
Dinitrophenol, 2,4-	0.0062	USEPA Region 5 ESL
Di-n-octyl phthalate	40.6	USEPA Region 5 ESL
Fluoranthene	0.42	USEPA Region 5 ESL
Fluorene	0.077	USEPA Region 5 ESL
Hexachlorobenzene	0.020	USEPA Region 5 ESL
Hexachlorobutadiene	0.027	USEPA Region 5 ESL
Hexachlorocyclopentadiene	0.90	USEPA Region 5 ESL

TABLE 7-8

Sediment Screening Values--Direct Exposure

Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

AnalyteName	Screening Value	Reference
Hexachloroethane	0.58	USEPA Region 5 ESL
Indeno(1,2,3-cd)pyrene	0.20	USEPA Region 5 ESL
Isophorone	NSV	USEPA Region 5 ESL
Methylnaphthalene, 2-	0.020	USEPA Region 5 ESL
Methylphenol, 2-	NSV	USEPA Region 5 ESL
Methylphenol, 4-	NSV	USEPA Region 5 ESL
Methylphenol, 4-chloro-3-	NSV	USEPA Region 5 ESL
Naphthalene	0.18	USEPA Region 5 ESL
Nitroaniline, 2-	NSV	USEPA Region 5 ESL
Nitroaniline, 3-	NSV	USEPA Region 5 ESL
Nitroaniline, 4-	NSV	USEPA Region 5 ESL
Nitrophenol, 2-	0.013	USEPA Region 5 ESL
Nitrophenol, 4-	0.013	USEPA Region 5 ESL
Nitrosodi-N-propylamine, N-	NSV	USEPA Region 5 ESL
Nitrosodiphenylamine, N-	NSV	USEPA Region 5 ESL
Pentachlorophenol	NSV	USEPA Region 5 ESL
Phenanthrene	NSV	USEPA Region 5 ESL
Phenol	NSV	USEPA Region 5 ESL
Pyrene	0.20	USEPA Region 5 ESL
Trichlorobenzene, 1,2,4-	5.06	USEPA Region 5 ESL
Trichlorophenol, 2,4,5-	0.21	USEPA Region 5 ESL
Trichlorophenol, 2,4,6-	0.21	USEPA Region 5 ESL
Total Low Molecular Weight PAHs	NSV	USEPA Region 3 BTAG
Total High Molecular Weight PAHs	NSV	USEPA Region 3 BTAG
Total PAHs	NSV	MacDonald et al. 2000
Volatile Organic Compounds (MG/KG)		
Acetone	0.0099	USEPA Region 5 ESL
Benzene	0.14	USEPA Region 5 ESL
Bromodichloromethane	NSV	
Bromoform	0.49	USEPA Region 5 ESL
Bromomethane	NSV	
Carbon disulfide	0.024	USEPA Region 5 ESL
Carbon tetrachloride	1.45	USEPA Region 5 ESL
Chlorobenzene	0.29	USEPA Region 5 ESL
Chloroethane	NSV	
Chloroform	0.12	USEPA Region 5 ESL
Chloromethane	NSV	
Dibromochloromethane	NSV	
Dichloroethane, 1,1-	5.75E-04	USEPA Region 5 ESL
Dichloroethane, 1,2-	0.26	USEPA Region 5 ESL
Dichloroethene, 1,1-	0.019	USEPA Region 5 ESL
Dichloroethenes, 1,2-, total	NSV	
Dichloropropane, 1,2-	0.33	USEPA Region 5 ESL
Dichloropropene, 1,3-, cis-	0.33	USEPA Region 5 ESL
Dichloropropene, 1,3-, trans-	0.33	USEPA Region 5 ESL
Ethylbenzene	0.18	USEPA Region 5 ESL
Methyl ethyl ketone	0.042	USEPA Region 5 ESL
Methyl isobutyl ketone	0.025	USEPA Region 5 ESL
Methyl n-butyl ketone	NSV	

TABLE 7-8

Sediment Screening Values--Direct Exposure

Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

AnalyteName	Screening Value	Reference
Methylene chloride	0.16	USEPA Region 5 ESL
Styrene	0.25	USEPA Region 5 ESL
Tetrachloroethane, 1,1,2,2-	0.85	USEPA Region 5 ESL
Tetrachloroethene	0.99	USEPA Region 5 ESL
Toluene	1.22	USEPA Region 5 ESL
Trichloroethane, 1,1,1-	0.21	USEPA Region 5 ESL
Trichloroethane, 1,1,2-	0.52	USEPA Region 5 ESL
Trichloroethene	0.11	USEPA Region 5 ESL
Vinyl chloride	0.20	USEPA Region 5 ESL
Xylenes, total	0.43	USEPA Region 5 ESL

TABLE 7-9

Uncertainty Factors Applied to Ingestion-Based Screening Values

Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Convert From	Convert To	Uncertainty Factor
Chronic NOAEL	Chronic NOAEL	1
Chronic LOAEL	Chronic NOAEL	5
Subchronic NOAEL	Chronic NOAEL	10
Subchronic LOAEL	Chronic NOAEL	20
Acute NOAEL	Chronic NOAEL	30
Acute LOAEL	Chronic NOAEL	50
LD50	Chronic NOAEL	100

Notes:

Uncertainty factors from: Wentsel. R.S. et al. 1996.

Durations are defined as follows (USEPA, August 1999; Sample et al. 1996):

- Acute: <14 days
- Subchronic: 14 - 90 days
- Chronic: >90 days or during critical life stage

See report Section 9 for complete references.

TABLE 7-10
Ingestion Screening Values for Mammals
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Chemical	Test Organism	Body Weight (kg)	Duration	Exposure Route	Effect/Endpoint	LOAEL (mg/kg/d)	NOAEL (mg/kg/d)	Reference	American Robin	Mallard Duck	Marsh Wren	Mourning Dove	Red-tailed Hawk
Inorganics													
Arsenic	mouse	0.03	3 generations	oral in water	reproduction	1.26	0.25	Sample et al. 1996	X		X	X	X
Arsenic	dog	10.0	2 years	oral in diet	systemic	6.00	1.20	ATSDR 1993a		X			
Chromium	rat	0.35	3 months	oral in water	mortality	131	26.3	Sample et al. 1996	X	X	X	X	X
Chromium	rat	0.35	1 year	oral in water	body weight/intake	16.4	3.28	Sample et al. 1996	X	X	X	X	X
Selenium	rat	0.35	1 year	oral in water	reproduction	0.33	0.20	Sample et al. 1996	X			X	X
Semivolatile Organics									X	X	X	X	X
Acenaphthylene	mouse	0.03	13 weeks	oral (gavage)	reproduction	700	350	ATSDR 1995a	X	X	X	X	X
Benzo(a)anthracene	mouse	0.03	GD 7-16	oral (gavage)	reproduction	10.0	2.00	Sample et al. 1996	X	X	X	X	X
Benzo(a)pyrene	mouse	0.03	GD 7-16	oral (gavage)	reproduction	10.0	2.00	Sample et al. 1996	X	X	X	X	X
Benzo(b)fluoranthene	mouse	0.03	GD 7-16	oral (gavage)	reproduction	10.0	2.00	Sample et al. 1996	X	X	X	X	X
Benzo(g,h,i)perylene	mouse	0.03	GD 7-16	oral (gavage)	reproduction	10.0	2.00	Sample et al. 1996	X	X	X	X	X
Benzo(k)fluoranthene	mouse	0.03	GD 7-16	oral (gavage)	reproduction	10.0	2.00	Sample et al. 1996	X	X	X	X	X
Chrysene	mouse	0.03	GD 7-16	oral (gavage)	reproduction	10.0	2.00	Sample et al. 1996	X	X	X	X	X
Dibenz(a,h)anthracene	mouse	0.03	GD 7-16	oral (gavage)	reproduction	10.0	2.00	Sample et al. 1996	X	X	X	X	X
Fluoranthene	mouse	0.03	13 weeks	oral (gavage)	reproduction	2,500	500	ATSDR 1995a	X	X	X	X	X
Fluorene	mouse	0.03	13 weeks	oral (gavage)	reproduction	2,500	500	ATSDR 1995a	X	X	X	X	X
Indeno(1,2,3-cd)pyrene	mouse	0.03	GD 7-16	oral (gavage)	reproduction	10.0	2.00	Sample et al. 1996	X	X	X	X	X
Phenanthrene	mouse	0.03	13 weeks	oral (gavage)	reproduction	2,500	500	ATSDR 1995a	X	X	X	X	X
Pyrene	mouse	0.03	GD 7-16	oral (gavage)	reproduction	10.0	2.00	Sample et al. 1996	X	X	X	X	X

TABLE 7-11
Ingestion Screening Values for Birds
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Chemical	Test Organism	Body Weight (kg)	Duration	Exposure Route	Effect/Endpoint	LOAEL (mg/kg/d)	NOAEL (mg/kg/d)	Reference	Muskrat	Red Fox	Short-tailed Shrew	White-footed Mouse	White-tailed Deer
Inorganics													
Arsenic	brown-headed cowbird	0.049	7 months	oral in diet	survival	7.38	2.46	Sample et al. 1996	X		X	X	X
Arsenic	mallard	1.00	128 days	oral in diet	survival	12.8	5.14	Sample et al. 1996		X			
Chromium	American black duck	1.25	10 months	oral in diet	reproduction	5.00	1.00	Sample et al. 1996		X			
Selenium	black-crowned night-heron	0.88	94 days	oral in diet	reproduction	9.00	1.80	Sample et al. 1996	X		X	X	X
Selenium	mallard	1.00	100 days	oral in diet	reproduction	0.80	0.40	Sample et al. 1996		X			
Selenium	screech owl	0.20	13.7 weeks	oral in diet	reproduction	1.50	0.44	Sample et al. 1996		X	X	X	X
Semivolatile Organics									X	X	X	X	X
Acenaphthylene	chicken	1.50	35 days	oral in diet	reproduction	35.5	7.10	Rigdon and Neal 1963	X	X	X	X	X
Acetophenone*	--	--	--	--	--	NA	NA	--	X	X	X	X	X
Anthracene	chicken	1.50	35 days	oral in diet	reproduction	35.5	7.10	Rigdon and Neal 1963	X	X	X	X	X
Benzo(a)anthracene	chicken	1.50	35 days	oral in diet	reproduction	35.5	7.10	Rigdon and Neal 1963	X	X	X	X	X
Benzo(a)pyrene	chicken	1.50	35 days	oral in diet	reproduction	35.5	7.10	Rigdon and Neal 1963	X	X	X	X	X
Benzo(b)fluoranthene	chicken	1.50	35 days	oral in diet	reproduction	35.5	7.10	Rigdon and Neal 1963	X		X	X	X
Benzo(g,h,i)perylene	chicken	1.50	35 days	oral in diet	reproduction	35.5	7.10	Rigdon and Neal 1963		X			
Benzo(k)fluoranthene	chicken	1.50	35 days	oral in diet	reproduction	35.5	7.10	Rigdon and Neal 1963	X	X	X	X	X
Chrysene	chicken	1.50	35 days	oral in diet	reproduction	35.5	7.10	Rigdon and Neal 1963	X	X	X	X	X
Dibenz(a,h)anthracene	chicken	1.50	35 days	oral in diet	reproduction	35.5	7.10	Rigdon and Neal 1963	X	X	X	X	X
Fluoranthene	chicken	1.50	35 days	oral in diet	reproduction	35.5	7.10	Rigdon and Neal 1963	X	X	X	X	X
Fluorene	chicken	1.50	35 days	oral in diet	reproduction	35.5	7.10	Rigdon and Neal 1963	X	X	X	X	X
Indeno(1,2,3-cd)pyrene	chicken	1.50	35 days	oral in diet	reproduction	35.5	7.10	Rigdon and Neal 1963	X	X	X	X	X
Phenanthrene	chicken	1.50	35 days	oral in diet	reproduction	35.5	7.10	Rigdon and Neal 1963	X	X	X	X	X
Pyrene	chicken	1.50	35 days	oral in diet	reproduction	35.5	7.10	Rigdon and Neal 1963	X	X	X	X	X

TABLE 7-12
Screening Statistics for Direct Exposures -- SWMU 17 Sediment
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Analyte Name	Frequency of Detection	Maximum Non-Detect	Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value	Frequency of Exceedance	Maximum Hazard Quotient[1]
Detected Constituents							
Inorganics (MG/KG)							
Arsenic	1 / 1	--	11.1	S17-SD01	9.79	1 / 1	**1.13**
Barium	1 / 1	--	107	S17-SD01	NTRV	-- / --	NTRV
Cadmium	1 / 1	--	0.26	S17-SD01	0.90	0 / 1	0.28
Chromium	1 / 1	--	27.7	S17-SD01	43.4	0 / 1	0.64
Lead	1 / 1	--	21.0	S17-SD01	35.8	0 / 1	0.59
Mercury	1 / 1	--	0.023	S17-SD01	0.17	0 / 1	0.13
Selenium	1 / 1	--	2.90	S17-SD01	2.00	1 / 1	**1.45**
Semivolatile Organic Compounds (UG/KG)							
1,1-Biphenyl	1 / 1	--	51.0	S17-SD01	NTRV	-- / --	NTRV
2-Methylnaphthalene	1 / 1	--	13.0	S17-SD01	20.2	0 / 1	0.64
Acenaphthylene	1 / 1	--	14.0	S17-SD01	5.87	1 / 1	**2.39**
Anthracene	1 / 1	--	22.0	S17-SD01	57.2	0 / 1	0.38
Benzo(a)anthracene	1 / 1	--	43.0	S17-SD01	108	0 / 1	0.40
Benzo(a)pyrene	1 / 1	--	47.0	S17-SD01	150	0 / 1	0.31
Benzo(b)fluoranthene	1 / 1	--	65.0	S17-SD01	10,400	0 / 1	0.0063
Benzo(g,h,i)perylene	1 / 1	--	38.0	S17-SD01	170	0 / 1	0.22
Benzo(k)fluoranthene	1 / 1	--	25.0	S17-SD01	240	0 / 1	0.10
Chrysene	1 / 1	--	55.0	S17-SD01	166	0 / 1	0.33
Dibenz(a,h)anthracene	1 / 1	--	13.0	S17-SD01	33.0	0 / 1	0.39
Fluoranthene	1 / 1	--	96.0	S17-SD01	423	0 / 1	0.23
Fluorene	1 / 1	--	10.0	S17-SD01	77.4	0 / 1	0.13
Indeno(1,2,3-cd)pyrene	1 / 1	--	32.0	S17-SD01	200	0 / 1	0.16
Pentachlorophenol	1 / 1	--	1,300	S17-SD01	NTRV	-- / --	NTRV
Phenanthrene	1 / 1	--	51.0	S17-SD01	NTRV	-- / --	NTRV
Pyrene	1 / 1	--	77.0	S17-SD01	195	0 / 1	0.39

TABLE 7-12
Screening Statistics for Direct Exposures -- SWMU 17 Sediment
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Analyte Name	Frequency of Detection	Maximum Non-Detect	Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value	Frequency of Exceedance	Maximum Hazard Quotient[1]
Non-Detected Constituents							
Inorganics (MG/KG)							
Silver	0 / 1	0.13	--	--	0.50	-- / --	0.26
Semivolatile Organic Compounds (UG/KG)							
1,2-Dichlorobenzene	0 / 1	2.00	--	--	294	-- / --	0.0068
1,3-Dichlorobenzene	0 / 1	2.00	--	--	1,315	-- / --	0.0015
1,4-Dichlorobenzene	0 / 1	2.00	--	--	318	-- / --	0.0063
1,4-Dioxane (p-Dioxane)	0 / 1	160	--	--	NTRV	-- / --	NTRV
2,4,5-Trichlorophenol	0 / 1	27.0	--	--	208	-- / --	0.13
2,4,6-Trichlorophenol	0 / 1	27.0	--	--	208	-- / --	0.13
2,4-Dichlorophenol	0 / 1	27.0	--	--	81.7	-- / --	0.33
2,4-Dimethylphenol	0 / 1	27.0	--	--	304	-- / --	0.089
2,4-Dinitrophenol	0 / 1	480	--	--	6.21	-- / --	**77.3**
2,4-Dinitrotoluene	0 / 1	110	--	--	NTRV	-- / --	NTRV
2,6-Dinitrotoluene	0 / 1	27.0	--	--	NTRV	-- / --	NTRV
2-Chloronaphthalene	0 / 1	11.0	--	--	417	-- / --	0.026
2-Chlorophenol	0 / 1	27.0	--	--	31.9	-- / --	0.85
2-Methylphenol	0 / 1	27.0	--	--	NTRV	-- / --	NTRV
2-Nitroaniline	0 / 1	27.0	--	--	NTRV	-- / --	NTRV
2-Nitrophenol	0 / 1	27.0	--	--	13.0	-- / --	**2.08**
3,3-Dichlorobenzidine	0 / 1	160	--	--	127	-- / --	**1.26**
3-Nitroaniline	0 / 1	110	--	--	NTRV	-- / --	NTRV
4,6-Dinitro-2-methylphenol	0 / 1	270	--	--	NTRV	-- / --	NTRV
4-Bromophenyl Phenyl Ether	0 / 1	27.0	--	--	NTRV	-- / --	NTRV
4-Chloro-3-methylphenol	0 / 1	27.0	--	--	NTRV	-- / --	NTRV
4-Chloroaniline	0 / 1	27.0	--	--	146	-- / --	0.18
4-Chlorophenyl Phenyl Ether	0 / 1	27.0	--	--	NTRV	-- / --	NTRV
4-Methylphenol	0 / 1	27.0	--	--	NTRV	-- / --	NTRV
4-Nitroaniline	0 / 1	110	--	--	NTRV	-- / --	NTRV
4-Nitrophenol	0 / 1	270	--	--	13.0	-- / --	**20.8**
Acenaphthene	0 / 1	5.00	--	--	6.10	-- / --	0.82

TABLE 7-12
Screening Statistics for Direct Exposures -- SWMU 17 Sediment
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Analyte Name	Frequency of Detection	Maximum Non-Detect	Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value	Frequency of Exceedance	Maximum Hazard Quotient[1]
Benzyl alcohol	0 / 1	270	--	--	NTRV	-- / --	NTRV
bis(2-Chloroethoxy)methane	0 / 1	27.0	--	--	NTRV	-- / --	NTRV
bis(2-Chloroethyl)ether	0 / 1	27.0	--	--	3,520	-- / --	0.0077
bis(2-Chloroisopropyl)ether	0 / 1	27.0	--	--	NTRV	-- / --	NTRV
bis(2-Ethylhexyl)phthalate	0 / 1	110	--	--	182	-- / --	0.60
Butyl Benzyl Phthalate	0 / 1	110	--	--	1,970	-- / --	0.056
Carbazole	0 / 1	27.0	--	--	NTRV	-- / --	NTRV
di-n-Butyl Phthalate	0 / 1	110	--	--	1,114	-- / --	0.099
di-n-Octyl Phthalate	0 / 1	110	--	--	40,600	-- / --	0.0027
Dibenzofuran	0 / 1	27.0	--	--	449	-- / --	0.060
Diethyl phthalate	0 / 1	110	--	--	295	-- / --	0.37
Dimethyl phthalate	0 / 1	110	--	--	NTRV	-- / --	NTRV
Hexachlorobenzene	0 / 1	5.00	--	--	20.0	-- / --	0.25
Hexachlorocyclopentadiene	0 / 1	270	--	--	901	-- / --	0.30
Hexachloroethane	0 / 1	53.0	--	--	584	-- / --	0.091
Isophorone	0 / 1	27.0	--	--	NTRV	-- / --	NTRV
N-Nitrosodipropylamine	0 / 1	27.0	--	--	NTRV	-- / --	NTRV
N-Nitrosodiphenylamine	0 / 1	27.0	--	--	NTRV	-- / --	NTRV
Nitrobenzene	0 / 1	27.0	--	--	NTRV	-- / --	NTRV
Phenol	0 / 1	27.0	--	--	NTRV	-- / --	NTRV
Volatile Organic Compounds (UG/KG)							
1,1,1,2-Tetrachloroethane	0 / 1	2.00	--	--	NTRV	-- / --	NTRV
1,1,1-Trichloroethane	0 / 1	2.00	--	--	213	-- / --	0.0094
1,1,2,2-Tetrachloroethane	0 / 1	2.00	--	--	850	-- / --	0.0024
1,1,2-Trichloroethane	0 / 1	2.00	--	--	518	-- / --	0.0039
1,1-Dichloroethane	0 / 1	2.00	--	--	0.58	-- / --	**3.48**
1,1-Dichloroethene	0 / 1	2.00	--	--	19.4	-- / --	0.10
1,1-Dichloropropene	0 / 1	2.00	--	--	NTRV	-- / --	NTRV
1,2,3-Trichlorobenzene	0 / 1	2.00	--	--	NTRV	-- / --	NTRV
1,2,3-Trichloropropane	0 / 1	2.00	--	--	NTRV	-- / --	NTRV
1,2,4-Trichlorobenzene	0 / 1	2.00	--	--	5,062	-- / --	3.95E-04

TABLE 7-12
Screening Statistics for Direct Exposures -- SWMU 17 Sediment
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Analyte Name	Frequency of Detection	Maximum Non-Detect	Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value	Frequency of Exceedance	Maximum Hazard Quotient[1]
1,2,4-Trimethylbenzene	0 / 1	2.00	--	--	NTRV	-- / --	NTRV
1,2-Dibromo-3-Chloropropane	0 / 1	3.00	--	--	NTRV	-- / --	NTRV
1,2-Dibromoethane	0 / 1	2.00	--	--	NTRV	-- / --	NTRV
1,2-Dichloroethane	0 / 1	2.00	--	--	260	-- / --	0.0077
1,2-Dichloropropane	0 / 1	2.00	--	--	333	-- / --	0.0060
1,3,5-Trimethylbenzene	0 / 1	2.00	--	--	NTRV	-- / --	NTRV
1,3-Dichloropropane	0 / 1	2.00	--	--	NTRV	-- / --	NTRV
2,2-Dichloropropane	0 / 1	2.00	--	--	NTRV	-- / --	NTRV
2-Butanone (MEK)	0 / 1	7.00	--	--	42.4	-- / --	0.17
o-Chlorotoluene	0 / 1	2.00	--	--	NTRV	-- / --	NTRV
2-Hexanone	0 / 1	5.00	--	--	NTRV	-- / --	NTRV
p-Chlorotoluene	0 / 1	2.00	--	--	NTRV	-- / --	NTRV
4-Methyl-2-Pentanone (MIBK)	0 / 1	5.00	--	--	25.1	-- / --	0.20
Acetone	0 / 1	12.0	--	--	9.90	-- / --	**1.21**
Benzene	0 / 1	0.80	--	--	142	-- / --	0.0056
Bromobenzene	0 / 1	2.00	--	--	NTRV	-- / --	NTRV
Bromochloromethane	0 / 1	2.00	--	--	NTRV	-- / --	NTRV
Bromodichloromethane	0 / 1	2.00	--	--	NTRV	-- / --	NTRV
Bromoform	0 / 1	2.00	--	--	492	-- / --	0.0041
Bromomethane	0 / 1	3.00	--	--	NTRV	-- / --	NTRV
Carbon Disulfide	0 / 1	2.00	--	--	23.9	-- / --	0.084
Carbon Tetrachloride	0 / 1	2.00	--	--	1,450	-- / --	0.0014
Chlorobenzene	0 / 1	2.00	--	--	291	-- / --	0.0069
Chloroethane	0 / 1	3.00	--	--	NTRV	-- / --	NTRV
Chloroform	0 / 1	2.00	--	--	121	-- / --	0.017
Chloromethane	0 / 1	3.00	--	--	NTRV	-- / --	NTRV
cis-1,2-Dichloroethene	0 / 1	2.00	--	--	NTRV	-- / --	NTRV
cis-1,3-Dichloropropene	0 / 1	2.00	--	--	333	-- / --	0.0060
Cyclohexane	0 / 1	2.00	--	--	NTRV	-- / --	NTRV
Dibromochloromethane	0 / 1	2.00	--	--	NTRV	-- / --	NTRV
Dibromomethane	0 / 1	2.00	--	--	NTRV	-- / --	NTRV

TABLE 7-12
Screening Statistics for Direct Exposures -- SWMU 17 Sediment
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Analyte Name	Frequency of Detection	Maximum Non-Detect	Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value	Frequency of Exceedance	Maximum Hazard Quotient[1]
Dichlorodifluoromethane	0 / 1	3.00	--	--	NTRV	-- / --	NTRV
Ethylbenzene	0 / 1	2.00	--	--	175	-- / --	0.011
1,1,2-Trichlorotrifluoroethane	0 / 1	3.00	--	--	NTRV	-- / --	NTRV
Hexachlorobutadiene	0 / 1	3.00	--	--	26.5	-- / --	0.11
Isopropylbenzene	0 / 1	2.00	--	--	NTRV	-- / --	NTRV
m- & p-Xylene	0 / 1	2.00	--	--	NTRV	-- / --	NTRV
Methyl acetate	0 / 1	3.00	--	--	NTRV	-- / --	NTRV
Methyl tert-Butyl Ether (MTBE)	0 / 1	0.80	--	--	NTRV	-- / --	NTRV
Methylcyclohexane	0 / 1	2.00	--	--	NTRV	-- / --	NTRV
Methylene chloride	0 / 1	3.00	--	--	NTRV	-- / --	NTRV
n-Butylbenzene	0 / 1	2.00	--	--	NTRV	-- / --	NTRV
n-Propylbenzene	0 / 1	2.00	--	--	NTRV	-- / --	NTRV
Naphthalene	0 / 1	2.00	--	--	176	-- / --	0.011
o-Xylene	0 / 1	2.00	--	--	NTRV	-- / --	NTRV
p-Isopropyltoluene	0 / 1	2.00	--	--	NTRV	-- / --	NTRV
sec-Butylbenzene	0 / 1	2.00	--	--	NTRV	-- / --	NTRV
Styrene	0 / 1	2.00	--	--	254	-- / --	0.0079
tert-Butylbenzene	0 / 1	2.00	--	--	NTRV	-- / --	NTRV
Tetrachloroethene (PCE)	0 / 1	2.00	--	--	990	-- / --	0.0020
Toluene	0 / 1	2.00	--	--	1,220	-- / --	0.0016
trans-1,2-Dichloroethene	0 / 1	2.00	--	--	NTRV	-- / --	NTRV
trans-1,3-Dichloropropene	0 / 1	2.00	--	--	333	-- / --	0.0060
Trichloroethene (TCE)	0 / 1	2.00	--	--	112	-- / --	0.018
Trichlorofluoromethane(Freon-11)	0 / 1	3.00	--	--	NTRV	-- / --	NTRV
Vinyl acetate	0 / 1	3.00	--	--	NTRV	-- / --	NTRV
Vinyl Chloride	0 / 1	2.00	--	--	202	-- / --	0.0099

Notes:
[1]HQs greater than 1 are in bold
Shaded cells indicate hazard quotient based on reporting limits
NTRV = NO TR Value

TABLE 7-13
Screening Statistics for Direct Exposures -- SWMU 17 Surface Soil
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

AnalyteName	Frequency of Detection	Maximum Non-Detect	Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value	Frequency of Exceedance	Maximum Hazard Quotient[1]
Detected Constituents							
Metal (MG/KG)							
Arsenic	3 / 3	--	13.7	S17-SS03-0002-120811	18.0	0 / 3	0.76
Barium	3 / 3	--	235	S17-SS03-0002-120811	330	0 / 3	0.71
Cadmium	3 / 3	--	1.89	S17-SS02-0002-121411	32.0	0 / 3	0.059
Chromium	3 / 3	--	58.1	S17-SS02-0002-121411	0.40	3 / 3	**145**
Lead	3 / 3	--	19.7	S17-SS02-0002-121411	120	0 / 3	0.16
Mercury	1 / 3	0.0082	0.011	S17-SS02-0002-121411	0.10	0 / 3	0.11
Selenium	1 / 3	0.83	3.57	S17-SS03-0002-120811	0.52	1 / 3	**6.87**
Semivolatile Organic Compounds (UG/KG)							
1,1-Biphenyl	1 / 3	21.0	58.0	S17-SS02-0002-121411	NTRV	-- / --	NTRV
2-Methylnaphthalene	1 / 3	4.00	49.0	S17-SS02-0002-121411	3,240	0 / 3	0.015
Acenaphthylene	1 / 3	4.00	11.0	S17-SS02-0002-121411	682,000	0 / 3	1.61E-05
Anthracene	1 / 3	4.00	5.00	S17-SS02-0002-121411	1,480,000	0 / 3	3.38E-06
Benzo(a)anthracene	1 / 3	4.00	12.0	S17-SS02-0002-121411	5,210	0 / 3	0.0023
Benzo(a)pyrene	2 / 3	4.00	20.0	S17-SS02-0002-121411	1,520	0 / 3	0.013
Benzo(b)fluoranthene	2 / 3	4.00	24.0	S17-SS02-0002-121411	59,800	0 / 3	4.01E-04
Benzo(g,h,i)perylene	2 / 3	4.00	21.0	S17-SS02-0002-121411	119,000	0 / 3	1.76E-04
Benzo(k)fluoranthene	1 / 3	4.00	5.00	S17-SS01-0002-121311	148,000	0 / 3	3.38E-05
Chrysene	2 / 3	4.00	16.0	S17-SS02-0002-121411	4,730	0 / 3	0.0034
Dibenz(a,h)anthracene	1 / 3	4.00	4.00	S17-SS01-0002-121311	18,400	0 / 3	2.17E-04
Fluoranthene	2 / 3	4.00	25.0	S17-SS02-0002-121411	122,000	0 / 3	2.05E-04
IndeNO(1,2,3-cd)pyrene	2 / 3	4.00	20.0	S17-SS02-0002-121411	109,000	0 / 3	1.83E-04
Phenanthrene	2 / 3	4.00	14.0	S17-SS02-0002-121411	45,700	0 / 3	3.06E-04
Pyrene	2 / 3	4.00	30.0	S17-SS02-0002-121411	45,700	0 / 3	6.56E-04
Volatile Organic Compounds (UG/KG)							
2-ButaNOne (MEK)	1 / 3	5.00	5.00	S17-SS01-0002-121311	89,600	0 / 3	5.58E-05
Acetone	3 / 3	--	67.0	S17-SS02-0002-121411	2,500	0 / 3	0.027

TABLE 7-13
Screening Statistics for Direct Exposures -- SWMU 17 Surface Soil
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

AnalyteName	Frequency of Detection	Maximum Non-Detect	Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value	Frequency of Exceedance	Maximum Hazard Quotient[1]
Non-Detected Constituents							
Inorganics (MG/KG)							
Silver	0 / 3	0.10	--	--	560	-- / --	1.80E-04
Semivolatile Organic Compounds (UG/KG)							
1,2-Dichlorobenzene	0 / 3	1.00	--	--	20,000	-- / --	5.00E-05
1,3-Dichlorobenzene	0 / 3	1.00	--	--	20,000	-- / --	5.00E-05
1,4-Dichlorobenzene	0 / 3	1.00	--	--	20,000	-- / --	5.00E-05
1,4-Dioxane (p-Dioxane)	0 / 3	130	--	--	NTRV	-- / --	NTRV
2,4,5-TrichloropheNOl	0 / 3	21.0	--	--	9,000	-- / --	0.0023
2,4,6-TrichloropheNOl	0 / 3	21.0	--	--	4,000	-- / --	0.0053
2,4-DichloropheNOl	0 / 3	21.0	--	--	20,000	-- / --	0.0011
2,4-DimethylpheNOl	0 / 3	21.0	--	--	10.0	-- / --	**2.10**
2,4-DinitropheNOl	0 / 3	420	--	--	20,000	-- / --	0.021
2,4-Dinitrotoluene	0 / 3	83.0	--	--	NTRV	-- / --	NTRV
2,6-Dinitrotoluene	0 / 3	21.0	--	--	NTRV	-- / --	NTRV
2-Chloronaphthalene	0 / 3	9.00	--	--	NTRV	-- / --	NTRV
2-ChloropheNOl	0 / 3	21.0	--	--	7,000	-- / --	0.0030
2-MethylpheNOl	0 / 3	21.0	--	--	NTRV	-- / --	NTRV
2-Nitroaniline	0 / 3	21.0	--	--	74,100	-- / --	2.83E-04
2-NitropheNOl	0 / 3	21.0	--	--	1,600	-- / --	0.013
3,3-Dichlorobenzidine	0 / 3	130	--	--	646	-- / --	0.20
3-Nitroaniline	0 / 3	83.0	--	--	3,160	-- / --	0.026
4,6-Dinitro-2-methylpheNOl	0 / 3	210	--	--	NTRV	-- / --	NTRV
4-Bromophenyl Phenyl Ether	0 / 3	21.0	--	--	NTRV	-- / --	NTRV
4-Chloro-3-methylpheNOl	0 / 3	21.0	--	--	NTRV	-- / --	NTRV
4-Chloroaniline	0 / 3	21.0	--	--	20,000	-- / --	0.0011
4-Chlorophenyl Phenyl Ether	0 / 3	21.0	--	--	NTRV	-- / --	NTRV
4-MethylpheNOl	0 / 3	21.0	--	--	NTRV	-- / --	NTRV

TABLE 7-13
Screening Statistics for Direct Exposures -- SWMU 17 Surface Soil
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

AnalyteName	Frequency of Detection	Maximum Non-Detect	Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value	Frequency of Exceedance	Maximum Hazard Quotient[1]
4-Nitroaniline	0 / 3	83.0	--	--	21,900	-- / --	0.0038
4-NitropheNOl	0 / 3	210	--	--	7,000	-- / --	0.030
Acenaphthene	0 / 3	4.00	--	--	20,000	-- / --	2.00E-04
Benzyl alcohol	0 / 3	210	--	--	NTRV	-- / --	NTRV
bis(2-Chloroethoxy)methane	0 / 3	21.0	--	--	302	-- / --	0.070
bis(2-Chloroethyl)ether	0 / 3	21.0	--	--	23,700	-- / --	8.86E-04
bis(2-Ethylhexyl)phthalate	0 / 3	83.0	--	--	925	-- / --	0.090
Butyl Benzyl Phthalate	0 / 3	83.0	--	--	NTRV	-- / --	NTRV
Carbazole	0 / 3	21.0	--	--	NTRV	-- / --	NTRV
di-n-Butyl Phthalate	0 / 3	83.0	--	--	150	-- / --	0.55
di-n-Octyl Phthalate	0 / 3	83.0	--	--	NTRV	-- / --	NTRV
Dibenzofuran	0 / 3	21.0	--	--	NTRV	-- / --	NTRV
Diethyl phthalate	0 / 3	83.0	--	--	100,000	-- / --	8.30E-04
Dimethyl phthalate	0 / 3	83.0	--	--	734,000	-- / --	1.13E-04
Fluorene	0 / 3	4.00	--	--	30,000	-- / --	1.33E-04
Hexachlorobenzene	0 / 3	4.00	--	--	NTRV	-- / --	NTRV
Hexachlorocyclopentadiene	0 / 3	210	--	--	NTRV	-- / --	NTRV
Hexachloroethane	0 / 3	42.0	--	--	NTRV	-- / --	NTRV
Isophorone	0 / 3	21.0	--	--	NTRV	-- / --	NTRV
N-Nitrosodipropylamine	0 / 3	21.0	--	--	NTRV	-- / --	NTRV
N-Nitrosodiphenylamine	0 / 3	21.0	--	--	545	-- / --	0.039
Nitrobenzene	0 / 3	21.0	--	--	NTRV	-- / --	NTRV
PentachloropheNOl	0 / 3	42.0	--	--	3,000	-- / --	0.014
PheNOl	0 / 3	21.0	--	--	30,000	-- / --	7.00E-04
Volatile Organic Compounds (UG/KG)							
1,1,1,2-Tetrachloroethane	0 / 3	1.00	--	--	127	-- / --	0.0079
1,1,1-Trichloroethane	0 / 3	1.00	--	--	29,800	-- / --	3.36E-05
1,1,2,2-Tetrachloroethane	0 / 3	1.00	--	--	127	-- / --	0.0079
1,1,2-Trichloroethane	0 / 3	1.00	--	--	28,600	-- / --	3.50E-05
1,1-Dichloroethane	0 / 3	1.00	--	--	20,100	-- / --	4.98E-05
1,1-Dichloroethene	0 / 3	1.00	--	--	8,280	-- / --	1.21E-04
1,1-Dichloropropene	0 / 3	1.00	--	--	398	-- / --	0.0025

TABLE 7-13
Screening Statistics for Direct Exposures -- SWMU 17 Surface Soil
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

AnalyteName	Frequency of Detection	Maximum Non-Detect	Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value	Frequency of Exceedance	Maximum Hazard Quotient[1]
1,2,3-Trichlorobenzene	0 / 3	1.00	--	--	20,000	-- / --	5.00E-05
1,2,3-Trichloropropane	0 / 3	1.00	--	--	3,360	-- / --	2.98E-04
1,2,4-Trichlorobenzene	0 / 3	1.00	--	--	20,000	-- / --	5.00E-05
1,2,4-Trimethylbenzene	0 / 3	1.00	--	--	NTRV	-- / --	NTRV
1,2-Dibromo-3-Chloropropane	0 / 3	2.00	--	--	35.2	-- / --	0.057
1,2-Dibromoethane	0 / 3	1.00	--	--	NTRV	-- / --	NTRV
1,2-Dichloroethane	0 / 3	1.00	--	--	21,200	-- / --	4.72E-05
1,2-Dichloropropane	0 / 3	1.00	--	--	32,700	-- / --	3.06E-05
1,3,5-Trimethylbenzene	0 / 3	1.00	--	--	NTRV	-- / --	NTRV
1,3-Dichloropropane	0 / 3	1.00	--	--	32,700	-- / --	3.06E-05
2,2-Dichloropropane	0 / 3	1.00	--	--	32,700	-- / --	3.06E-05
o-Chlorotoluene	0 / 3	1.00	--	--	NTRV	-- / --	NTRV
2-HexaNOne	0 / 3	3.00	--	--	NTRV	-- / --	NTRV
p-Chlorotoluene	0 / 3	1.00	--	--	NTRV	-- / --	NTRV
4-Methyl-2-PentaNOne (MIBK)	0 / 3	3.00	--	--	NTRV	-- / --	NTRV
Benzene	0 / 3	0.60	--	--	255	-- / --	0.0024
Bromobenzene	0 / 3	1.00	--	--	NTRV	-- / --	NTRV
Bromochloromethane	0 / 3	1.00	--	--	NTRV	-- / --	NTRV
Bromodichloromethane	0 / 3	1.00	--	--	540	-- / --	0.0019
Bromoform	0 / 3	1.00	--	--	15,900	-- / --	6.29E-05
Bromomethane	0 / 3	2.00	--	--	NTRV	-- / --	NTRV
Carbon Disulfide	0 / 3	1.00	--	--	94.1	-- / --	0.011
Carbon Tetrachloride	0 / 3	1.00	--	--	2,980	-- / --	3.36E-04
Chlorobenzene	0 / 3	1.00	--	--	40,000	-- / --	2.50E-05
Chloroethane	0 / 3	2.00	--	--	NTRV	-- / --	NTRV
Chloroform	0 / 3	1.00	--	--	1,190	-- / --	8.40E-04
Chloromethane	0 / 3	2.00	--	--	NTRV	-- / --	NTRV
cis-1,2-Dichloroethene	0 / 3	1.00	--	--	784	-- / --	0.0013
cis-1,3-Dichloropropene	0 / 3	1.00	--	--	398	-- / --	0.0025
Cyclohexane	0 / 3	1.00	--	--	NTRV	-- / --	NTRV
Dibromochloromethane	0 / 3	1.00	--	--	2,050	-- / --	4.88E-04
Dibromomethane	0 / 3	1.00	--	--	65,000	-- / --	1.54E-05

TABLE 7-13
Screening Statistics for Direct Exposures -- SWMU 17 Surface Soil
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

AnalyteName	Frequency of Detection	Maximum Non-Detect	Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value	Frequency of Exceedance	Maximum Hazard Quotient[1]
Dichlorodifluoromethane	0 / 3	2.00	--	--	39,500	-- / --	5.06E-05
Ethylbenzene	0 / 3	1.00	--	--	5,160	-- / --	1.94E-04
1,1,2-Trichlorotrifluoroethane	0 / 3	2.00	--	--	NTRV	-- / --	NTRV
Hexachlorobutadiene	0 / 3	2.00	--	--	NTRV	-- / --	NTRV
Isopropylbenzene	0 / 3	1.00	--	--	NTRV	-- / --	NTRV
m- and p-Xylene	0 / 3	1.00	--	--	NTRV	-- / --	NTRV
Methyl acetate	0 / 3	2.00	--	--	NTRV	-- / --	NTRV
Methyl tert-Butyl Ether (MTBE)	0 / 3	0.60	--	--	NTRV	-- / --	NTRV
Methylcyclohexane	0 / 3	1.00	--	--	NTRV	-- / --	NTRV
Methylene chloride	0 / 3	2.00	--	--	NTRV	-- / --	NTRV
n-Butylbenzene	0 / 3	1.00	--	--	NTRV	-- / --	NTRV
n-Propylbenzene	0 / 3	1.00	--	--	NTRV	-- / --	NTRV
Naphthalene	0 / 3	1.00	--	--	99.4	-- / --	0.010
o-Xylene	0 / 3	1.00	--	--	NTRV	-- / --	NTRV
p-Isopropyltoluene	0 / 3	1.00	--	--	NTRV	-- / --	NTRV
sec-Butylbenzene	0 / 3	1.00	--	--	NTRV	-- / --	NTRV
Styrene	0 / 3	1.00	--	--	4,690	-- / --	2.13E-04
tert-Butylbenzene	0 / 3	1.00	--	--	NTRV	-- / --	NTRV
Tetrachloroethene (PCE)	0 / 3	1.00	--	--	9,920	-- / --	1.01E-04
Toluene	0 / 3	1.00	--	--	5,450	-- / --	1.83E-04
trans-1,2-Dichloroethene	0 / 3	1.00	--	--	784	-- / --	0.0013
trans-1,3-Dichloropropene	0 / 3	1.00	--	--	398	-- / --	0.0025
Trichloroethene (TCE)	0 / 3	1.00	--	--	12,400	-- / --	8.06E-05
Trichlorofluoromethane(Freon-11)	0 / 3	2.00	--	--	16,400	-- / --	1.22E-04
Vinyl acetate	0 / 3	2.00	--	--	NTRV	-- / --	NTRV
Vinyl Chloride	0 / 3	1.00	--	--	646	-- / --	0.0015

Notes:
[1]HQs greater than 1 are in bold
Shaded cells indicate hazard quotient based on reporting limits
NTRV = NO TR Value

TABLE 7-14

Screening Statistics for Direct Exposures -- Sediment - SWMU 18

Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Analyte	Frequency of Detection	Maximum Non-Detect	Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value	Frequency of Exceedance	Maximum Hazard Quotient[1]
Detected Constituents							
METAL (MG/KG)							
Arsenic	5 / 5	--	16.4	S18-SD04	9.79	4 / 5	**1.68**
Barium	5 / 5	--	163	S18-SD05	NTRV	-- / --	NTRV
Cadmium	5 / 5	--	0.71	S18-SD01	0.90	0 / 5	0.79
Chromium	5 / 5	--	46.5	S18-SD01	43.4	1 / 5	**1.07**
Lead	5 / 5	--	33.2	S18-SD01	35.8	0 / 5	0.93
Mercury	3 / 5	0.0082	0.022	S18-SD01	0.17	0 / 5	0.13
Selenium	4 / 5	0.96	4.35	S18-SD04	2.00	3 / 5	**2.18**
Semivolatile Organic Compounds (ug/kg)							
1,1-Biphenyl	5 / 5	--	2,700	S18-SD02	NTRV	-- / --	NTRV
2-Methylnaphthalene	4 / 5	52.0	64.0	S18-SD01	20.2	1 / 5	**3.17**
Acenaphthylene	4 / 5	52.0	70.0	S18-SD01	5.87	4 / 5	**11.9**
Anthracene	4 / 5	52.0	270	S18-SD01	57.2	1 / 5	**4.72**
Benzo(a)anthracene	5 / 5	--	720	S18-SD01	108	3 / 5	**6.67**
Benzo(a)pyrene	5 / 5	--	750	S18-SD01	150	2 / 5	**5.00**
Benzo(b)fluoranthene	5 / 5	--	930	S18-SD01	10,400	0 / 5	0.089
Benzo(g,h,i)perylene	5 / 5	--	560	S18-SD01	170	1 / 5	**3.29**
Benzo(k)fluoranthene	5 / 5	--	550	S18-SD01	240	1 / 5	**2.29**
Chrysene	5 / 5	--	850	S18-SD01	166	1 / 5	**5.12**
Dibenz(a,h)anthracene	3 / 5	52.0	130	S18-SD01	33.0	1 / 5	**3.94**
Fluoranthene	5 / 5	--	2,200	S18-SD01	423	1 / 5	**5.20**
Fluorene	2 / 5	52.0	550	S18-SD01	77.4	1 / 5	**7.11**
Indeno(1,2,3-cd)pyrene	5 / 5	--	510	S18-SD01	200	1 / 5	**2.55**
Phenanthrene	5 / 5	--	1,100	S18-SD01	NTRV	-- / --	NTRV
Pyrene	5 / 5	--	1,600	S18-SD01	195	3 / 5	**8.21**
Volatile Organic Compounds (ug/kg)							
2-Butanone (MEK)	1 / 5	7.00	7.00	S18-SD02	42.4	0 / 5	0.17
Acetone	2 / 5	12.0	27.0	S18-SD02	9.90	2 / 5	**2.73**
Isopropylbenzene	1 / 5	2.00	3.00	S18-SD01	NTRV	-- / --	NTRV
Methylene chloride	1 / 5	3.00	4.00	S18-SD04	NTRV	-- / --	NTRV

TABLE 7-14

Screening Statistics for Direct Exposures -- Sediment - SWMU 18

Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Analyte	Frequency of Detection	Maximum Non-Detect	Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value	Frequency of Exceedance	Maximum Hazard Quotient[1]
Non-Detected Constituents							
METAL (MG/KG)					NTRV	-- --	NTRV
Silver	0 / 5	0.13	--	--	0.50	-- / --	0.26
Semivolatile Organic Compounds (ug/kg)							
1,2-Dichlorobenzene	0 / 5	2.00	--	--	294	-- / --	0.0068
1,3-Dichlorobenzene	0 / 5	2.00	--	--	1,315	-- / --	0.0015
1,4-Dichlorobenzene	0 / 5	2.00	--	--	318	-- / --	0.0063
1,4-Dioxane (p-Dioxane)	0 / 4	1,600	--	--	NTRV	-- / --	NTRV
2,4,5-Trichlorophenol	0 / 5	260	--	--	208	-- / --	**1.25**
2,4,6-Trichlorophenol	0 / 5	260	--	--	208	-- / --	**1.25**
2,4-Dichlorophenol	0 / 5	260	--	--	81.7	-- / --	**3.18**
2,4-Dimethylphenol	0 / 5	260	--	--	304	-- / --	0.86
2,4-Dinitrophenol	0 / 4	4,700	--	--	6.21	-- / --	**757**
2,4-Dinitrotoluene	0 / 5	1,000	--	--	NTRV	-- / --	NTRV
2,6-Dinitrotoluene	0 / 5	260	--	--	NTRV	-- / --	NTRV
2-Chloronaphthalene	0 / 5	110	--	--	417	-- / --	0.26
2-Chlorophenol	0 / 5	260	--	--	31.9	-- / --	**8.15**
2-Methylphenol	0 / 5	260	--	--	NTRV	-- / --	NTRV
2-Nitroaniline	0 / 5	260	--	--	NTRV	-- / --	NTRV
2-Nitrophenol	0 / 5	260	--	--	13.0	-- / --	**20.0**
3,3-Dichlorobenzidine	0 / 4	1,600	--	--	127	-- / --	**12.6**
3-Nitroaniline	0 / 5	1,000	--	--	NTRV	-- / --	NTRV
4,6-Dinitro-2-methylphenol	0 / 5	2,600	--	--	NTRV	-- / --	NTRV
4-Bromophenyl Phenyl Ether	0 / 5	260	--	--	NTRV	-- / --	NTRV
4-Chloro-3-methylphenol	0 / 5	260	--	--	NTRV	-- / --	NTRV
4-Chloroaniline	0 / 5	260	--	--	146	-- / --	**1.78**
4-Chlorophenyl Phenyl Ether	0 / 5	260	--	--	NTRV	-- / --	NTRV
4-Methylphenol	0 / 5	260	--	--	NTRV	-- / --	NTRV
4-Nitroaniline	0 / 5	1,000	--	--	NTRV	-- / --	NTRV
4-Nitrophenol	0 / 4	2,600	--	--	13.0	-- / --	**200**
Acenaphthene	0 / 5	52.0	--	--	6.10	-- / --	**8.52**

TABLE 7-14

Screening Statistics for Direct Exposures -- Sediment - SWMU 18

Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Analyte	Frequency of Detection	Maximum Non-Detect	Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value	Frequency of Exceedance	Maximum Hazard Quotient[1]
Benzyl alcohol	0 / 4	2,600	--	--	NTRV	-- / --	NTRV
bis(2-Chloroethoxy)methane	0 / 5	260	--	--	NTRV	-- / --	NTRV
bis(2-Chloroethyl)ether	0 / 5	260	--	--	3,520	-- / --	0.074
bis(2-Chloroisopropyl)ether	0 / 5	260	--	--	NTRV	-- / --	NTRV
bis(2-Ethylhexyl)phthalate	0 / 5	1,000	--	--	182	-- / --	**5.49**
Butyl Benzyl Phthalate	0 / 5	1,000	--	--	1,970	-- / --	0.51
Carbazole	0 / 5	260	--	--	NTRV	-- / --	NTRV
di-n-Butyl Phthalate	0 / 5	1,000	--	--	1,114	-- / --	0.90
di-n-Octyl Phthalate	0 / 5	1,000	--	--	40,600	-- / --	0.025
Dibenzofuran	0 / 5	260	--	--	449	-- / --	0.58
Diethyl phthalate	0 / 5	1,000	--	--	295	-- / --	**3.39**
Dimethyl phthalate	0 / 5	1,000	--	--	NTRV	-- / --	NTRV
Hexachlorobenzene	0 / 5	52.0	--	--	20.0	-- / --	**2.60**
Hexachlorocyclopentadiene	0 / 4	2,600	--	--	901	-- / --	**2.89**
Hexachloroethane	0 / 5	520	--	--	584	-- / --	0.89
Isophorone	0 / 5	260	--	--	NTRV	-- / --	NTRV
N-Nitrosodipropylamine	0 / 5	260	--	--	NTRV	-- / --	NTRV
N-Nitrosodiphenylamine	0 / 5	260	--	--	NTRV	-- / --	NTRV
Nitrobenzene	0 / 5	260	--	--	NTRV	-- / --	NTRV
Pentachlorophenol	0 / 5	520	--	--	NTRV	-- / --	NTRV
Phenol	0 / 5	260	--	--	NTRV	-- / --	NTRV
Volatile Organic Compounds (ug/kg)							
1,1,1,2-Tetrachloroethane	0 / 5	2.00	--	--	NTRV	-- / --	NTRV
1,1,1-Trichloroethane	0 / 5	2.00	--	--	213	-- / --	0.0094
1,1,2,2-Tetrachloroethane	0 / 5	2.00	--	--	850	-- / --	0.0024
1,1,2-Trichloroethane	0 / 5	2.00	--	--	518	-- / --	0.0039
1,1-Dichloroethane	0 / 5	2.00	--	--	0.58	-- / --	**3.48**
1,1-Dichloroethene	0 / 5	2.00	--	--	19.4	-- / --	0.10
1,1-Dichloropropene	0 / 5	2.00	--	--	NTRV	-- / --	NTRV
1,2,3-Trichlorobenzene	0 / 5	2.00	--	--	NTRV	-- / --	NTRV
1,2,3-Trichloropropane	0 / 5	2.00	--	--	NTRV	-- / --	NTRV

TABLE 7-14

Screening Statistics for Direct Exposures -- Sediment - SWMU 18

Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Analyte	Frequency of Detection	Maximum Non-Detect	Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value	Frequency of Exceedance	Maximum Hazard Quotient[1]
1,2,4-Trichlorobenzene	0 / 5	2.00	--	--	5,062	-- / --	3.95E-04
1,2,4-Trimethylbenzene	0 / 5	2.00	--	--	NTRV	-- / --	NTRV
1,2-Dibromo-3-Chloropropane	0 / 5	3.00	--	--	NTRV	-- / --	NTRV
1,2-Dibromoethane	0 / 5	2.00	--	--	NTRV	-- / --	NTRV
1,2-Dichloroethane	0 / 5	2.00	--	--	260	-- / --	0.0077
1,2-Dichloropropane	0 / 5	2.00	--	--	333	-- / --	0.0060
1,3,5-Trimethylbenzene	0 / 5	2.00	--	--	NTRV	-- / --	NTRV
1,3-Dichloropropane	0 / 5	2.00	--	--	NTRV	-- / --	NTRV
2,2-Dichloropropane	0 / 5	2.00	--	--	NTRV	-- / --	NTRV
o-Chlorotoluene	0 / 5	2.00	--	--	NTRV	-- / --	NTRV
2-Hexanone	0 / 5	5.00	--	--	NTRV	-- / --	NTRV
p-Chlorotoluene	0 / 5	2.00	--	--	NTRV	-- / --	NTRV
4-Methyl-2-Pentanone (MIBK)	0 / 5	5.00	--	--	25.1	-- / --	0.20
Benzene	0 / 5	0.80	--	--	142	-- / --	0.0056
Bromobenzene	0 / 5	2.00	--	--	NTRV	-- / --	NTRV
Bromochloromethane	0 / 5	2.00	--	--	NTRV	-- / --	NTRV
Bromodichloromethane	0 / 5	2.00	--	--	NTRV	-- / --	NTRV
Bromoform	0 / 5	2.00	--	--	492	-- / --	0.0041
Bromomethane	0 / 5	3.00	--	--	NTRV	-- / --	NTRV
Carbon Disulfide	0 / 5	2.00	--	--	23.9	-- / --	0.084
Carbon Tetrachloride	0 / 5	2.00	--	--	1,450	-- / --	0.0014
Chlorobenzene	0 / 5	2.00	--	--	291	-- / --	0.0069
Chloroethane	0 / 5	3.00	--	--	NTRV	-- / --	NTRV
Chloroform	0 / 5	2.00	--	--	121	-- / --	0.017
Chloromethane	0 / 5	3.00	--	--	NTRV	-- / --	NTRV
cis-1,2-Dichloroethene	0 / 5	2.00	--	--	NTRV	-- / --	NTRV
cis-1,3-Dichloropropene	0 / 5	2.00	--	--	333	-- / --	0.0060
Cyclohexane	0 / 5	2.00	--	--	NTRV	-- / --	NTRV
Dibromochloromethane	0 / 5	2.00	--	--	NTRV	-- / --	NTRV
Dibromomethane	0 / 5	2.00	--	--	NTRV	-- / --	NTRV
Dichlorodifluoromethane	0 / 5	3.00	--	--	NTRV	-- / --	NTRV

TABLE 7-14

Screening Statistics for Direct Exposures -- Sediment - SWMU 18

Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Analyte	Frequency of Detection	Maximum Non-Detect	Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value	Frequency of Exceedance	Maximum Hazard Quotient[1]
Ethylbenzene	0 / 5	2.00	--	--	175	-- / --	0.011
1,1,2-Trichlorotrifluoroethane	0 / 5	3.00	--	--	NTRV	-- / --	NTRV
Hexachlorobutadiene	0 / 5	3.00	--	--	26.5	-- / --	0.11
m- & p-Xylene	0 / 5	2.00	--	--	NTRV	-- / --	NTRV
Methyl acetate	0 / 5	3.00	--	--	NTRV	-- / --	NTRV
Methyl tert-Butyl Ether (MTBE)	0 / 5	0.80	--	--	NTRV	-- / --	NTRV
Methylcyclohexane	0 / 5	2.00	--	--	NTRV	-- / --	NTRV
n-Butylbenzene	0 / 5	2.00	--	--	NTRV	-- / --	NTRV
n-Propylbenzene	0 / 5	2.00	--	--	NTRV	-- / --	NTRV
Naphthalene	0 / 5	2.00	--	--	176	-- / --	0.011
o-Xylene	0 / 5	2.00	--	--	NTRV	-- / --	NTRV
p-Isopropyltoluene	0 / 5	2.00	--	--	NTRV	-- / --	NTRV
sec-Butylbenzene	0 / 5	2.00	--	--	NTRV	-- / --	NTRV
Styrene	0 / 5	2.00	--	--	254	-- / --	0.0079
tert-Butylbenzene	0 / 5	2.00	--	--	NTRV	-- / --	NTRV
Tetrachloroethene (PCE)	0 / 5	2.00	--	--	990	-- / --	0.0020
Toluene	0 / 5	2.00	--	--	1,220	-- / --	0.0016
trans-1,2-Dichloroethene	0 / 5	2.00	--	--	NTRV	-- / --	NTRV
trans-1,3-Dichloropropene	0 / 5	2.00	--	--	333	-- / --	0.0060
Trichloroethene (TCE)	0 / 5	2.00	--	--	112	-- / --	0.018
Trichlorofluoromethane(Freon-11)	0 / 5	3.00	--	--	NTRV	-- / --	NTRV
Vinyl acetate	0 / 5	3.00	--	--	NTRV	-- / --	NTRV
Vinyl Chloride	0 / 5	2.00	--	--	202	-- / --	0.0099

Notes:

[1]HQs greater than 1 are in bold

Shaded cells indicate hazard quotient based on reporting limits

NTRV = NO TR Value

TABLE 7-15

Screening Statistics for Direct Exposures --SWMU 19 Surface Soil

Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Analyte	Frequency of Detection	Maximum Non-Detect	Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value	Frequency of Exceedance	Maximum Hazard Quotient[1]
Detected Constituents							
METAL (MG/KG)							
Arsenic	2 / 2	--	12.5	S19-SS01-0002-121311	18.0	0 / 2	0.69
Barium	2 / 2	--	100	S19-SS01-0002-121311	330	0 / 2	0.30
Cadmium	2 / 2	--	0.97	S19-SS02-0002-121311	32.0	0 / 2	0.030
Chromium	2 / 2	--	26.8	S19-SS01-0002-121311	0.40	2 / 2	**67.0**
Lead	2 / 2	--	13.7	S19-SS02-0002-121311	120	0 / 2	0.11
Mercury	1 / 2	0.0078	0.015	S19-SS02-0002-121311	0.10	0 / 2	0.15
Semivolatile Organic Compounds (UG/KG)							
1,1-Biphenyl	1 / 2	20.0	66.0	S19-SS02-0002-121311	NTRV	-- / --	NTRV
2-Methylnaphthalene	2 / 2	--	8.00	S19-SS01-0002-121311	3,240	0 / 2	0.0025
Acenaphthene	1 / 2	4.00	5.00	S19-SS01-0002-121311	20,000	0 / 2	2.50E-04
Anthracene	2 / 2	--	8.00	S19-SS02-0002-121311	1,480,000	0 / 2	5.41E-06
Benzo(a)anthracene	2 / 2	--	20.0	S19-SS02-0002-121311	5,210	0 / 2	0.0038
Benzo(a)pyrene	2 / 2	--	35.0	S19-SS02-0002-121311	1,520	0 / 2	0.023
Benzo(b)fluoranthene	2 / 2	--	50.0	S19-SS02-0002-121311	59,800	0 / 2	8.36E-04
Benzo(g,h,i)perylene	2 / 2	--	26.0	S19-SS02-0002-121311	119,000	0 / 2	2.18E-04
Benzo(k)fluoranthene	2 / 2	--	34.0	S19-SS02-0002-121311	148,000	0 / 2	2.30E-04
bis(2-Ethylhexyl)phthalate	1 / 2	81.0	85.0	S19-SS01-0002-121311	925	0 / 2	0.092
Chrysene	2 / 2	--	30.0	S19-SS02-0002-121311	4,730	0 / 2	0.0063
Dibenz(a,h)anthracene	2 / 2	--	12.0	S19-SS02-0002-121311	18,400	0 / 2	6.52E-04
Fluoranthene	2 / 2	--	28.0	S19-SS02-0002-121311	122,000	0 / 2	2.30E-04
Fluorene	1 / 2	4.00	6.00	S19-SS01-0002-121311	30,000	0 / 2	2.00E-04
Indeno(1,2,3-cd)pyrene	2 / 2	--	22.0	S19-SS02-0002-121311	109,000	0 / 2	2.02E-04
Phenanthrene	2 / 2	--	22.0	S19-SS01-0002-121311	45,700	0 / 2	4.81E-04
Phenol	1 / 2	20.0	34.0	S19-SS02-0002-121311	30,000	0 / 2	0.0011
Pyrene	2 / 2	--	28.0	S19-SS02-0002-121311	45,700	0 / 2	6.13E-04
Volatile Organic Compounds (UG/KG)							
1,2,4-Trimethylbenzene	1 / 2	1.00	2.00	S19-SS02-0002-121311	NTRV	-- / --	NTRV
2-Butanone (MEK)	2 / 2	--	22.0	S19-SS02-0002-121311	89,600	0 / 2	2.46E-04
Acetone	2 / 2	--	130	S19-SS02-0002-121311	2,500	0 / 2	0.052

TABLE 7-15

Screening Statistics for Direct Exposures --SWMU 19 Surface Soil

Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Analyte	Frequency of Detection	Maximum Non-Detect	Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value	Frequency of Exceedance	Maximum Hazard Quotient[1]
Non-Detected Constituents							
METAL (MG/KG)							
Selenium	0 / 2	0.82	--	--	0.52	-- / --	**1.58**
Silver	0 / 2	0.10	--	--	560	-- / --	1.79E-04
Semivolatile Organic Compounds (UG/KG)							
1,2-Dichlorobenzene	0 / 2	1.00	--	--	20,000	-- / --	5.00E-05
1,3-Dichlorobenzene	0 / 2	1.00	--	--	20,000	-- / --	5.00E-05
1,4-Dichlorobenzene	0 / 2	1.00	--	--	20,000	-- / --	5.00E-05
1,4-Dioxane (p-Dioxane)	0 / 2	120	--	--	NTRV	-- / --	NTRV
2,4,5-Trichlorophenol	0 / 2	20.0	--	--	9,000	-- / --	0.0022
2,4,6-Trichlorophenol	0 / 2	20.0	--	--	4,000	-- / --	0.0050
2,4-Dichlorophenol	0 / 2	20.0	--	--	20,000	-- / --	0.0010
2,4-Dimethylphenol	0 / 2	20.0	--	--	10.0	-- / --	**2.00**
2,4-Dinitrophenol	0 / 2	410	--	--	20,000	-- / --	0.021
2,4-Dinitrotoluene	0 / 2	81.0	--	--	NTRV	-- / --	NTRV
2,6-Dinitrotoluene	0 / 2	20.0	--	--	NTRV	-- / --	NTRV
2-Chloronaphthalene	0 / 2	9.00	--	--	NTRV	-- / --	NTRV
2-Chlorophenol	0 / 2	20.0	--	--	7,000	-- / --	0.0029
2-Methylphenol	0 / 2	20.0	--	--	NTRV	-- / --	NTRV
2-Nitroaniline	0 / 2	20.0	--	--	74,100	-- / --	2.70E-04
2-Nitrophenol	0 / 2	20.0	--	--	1,600	-- / --	0.013
3,3-Dichlorobenzidine	0 / 2	120	--	--	646	-- / --	0.19
3-Nitroaniline	0 / 2	81.0	--	--	3,160	-- / --	0.026
4,6-Dinitro-2-methylphenol	0 / 2	200	--	--	NTRV	-- / --	NTRV
4-Bromophenyl Phenyl Ether	0 / 2	20.0	--	--	NTRV	-- / --	NTRV
4-Chloro-3-methylphenol	0 / 2	20.0	--	--	NTRV	-- / --	NTRV
4-Chloroaniline	0 / 2	20.0	--	--	20,000	-- / --	0.0010
4-Chlorophenyl Phenyl Ether	0 / 2	20.0	--	--	NTRV	-- / --	NTRV
4-Methylphenol	0 / 2	20.0	--	--	NTRV	-- / --	NTRV
4-Nitroaniline	0 / 2	81.0	--	--	21,900	-- / --	0.0037
4-Nitrophenol	0 / 2	200	--	--	7,000	-- / --	0.029

TABLE 7-15

Screening Statistics for Direct Exposures --SWMU 19 Surface Soil

Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Analyte	Frequency of Detection	Maximum Non-Detect	Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value	Frequency of Exceedance	Maximum Hazard Quotient[1]
Acenaphthylene	0 / 2	4.00	--	--	682,000	-- / --	5.87E-06
Benzyl alcohol	0 / 2	200	--	--	NTRV	-- / --	NTRV
bis(2-Chloroethoxy)methane	0 / 2	20.0	--	--	302	-- / --	0.066
bis(2-Chloroethyl)ether	0 / 2	20.0	--	--	23,700	-- / --	8.44E-04
Butyl Benzyl Phthalate	0 / 2	81.0	--	--	NTRV	-- / --	NTRV
Carbazole	0 / 2	20.0	--	--	NTRV	-- / --	NTRV
di-n-Butyl Phthalate	0 / 2	81.0	--	--	150	-- / --	0.54
di-n-Octyl Phthalate	0 / 2	81.0	--	--	NTRV	-- / --	NTRV
Dibenzofuran	0 / 2	20.0	--	--	NTRV	-- / --	NTRV
Diethyl phthalate	0 / 2	81.0	--	--	100,000	-- / --	8.10E-04
Dimethyl phthalate	0 / 2	81.0	--	--	734,000	-- / --	1.10E-04
Hexachlorobenzene	0 / 2	4.00	--	--	NTRV	-- / --	NTRV
Hexachlorocyclopentadiene	0 / 2	200	--	--	NTRV	-- / --	NTRV
Hexachloroethane	0 / 2	41.0	--	--	NTRV	-- / --	NTRV
Isophorone	0 / 2	20.0	--	--	NTRV	-- / --	NTRV
N-Nitrosodipropylamine	0 / 2	20.0	--	--	NTRV	-- / --	NTRV
N-Nitrosodiphenylamine	0 / 2	20.0	--	--	545	-- / --	0.037
Nitrobenzene	0 / 2	20.0	--	--	NTRV	-- / --	NTRV
Pentachlorophenol	0 / 2	41.0	--	--	3,000	-- / --	0.014
Volatile Organic Compounds (UG/KG)							
1,1,1,2-Tetrachloroethane	0 / 2	1.00	--	--	127	-- / --	0.0079
1,1,1-Trichloroethane	0 / 2	1.00	--	--	29,800	-- / --	3.36E-05
1,1,2,2-Tetrachloroethane	0 / 2	1.00	--	--	127	-- / --	0.0079
1,1,2-Trichloroethane	0 / 2	1.00	--	--	28,600	-- / --	3.50E-05
1,1-Dichloroethane	0 / 2	1.00	--	--	20,100	-- / --	4.98E-05
1,1-Dichloroethene	0 / 2	1.00	--	--	8,280	-- / --	1.21E-04
1,1-Dichloropropene	0 / 2	1.00	--	--	398	-- / --	0.0025
1,2,3-Trichlorobenzene	0 / 2	1.00	--	--	20,000	-- / --	5.00E-05
1,2,3-Trichloropropane	0 / 2	1.00	--	--	3,360	-- / --	2.98E-04
1,2,4-Trichlorobenzene	0 / 2	1.00	--	--	20,000	-- / --	5.00E-05
1,2-Dibromo-3-Chloropropane	0 / 2	2.00	--	--	35.2	-- / --	0.057

TABLE 7-15

Screening Statistics for Direct Exposures --SWMU 19 Surface Soil

Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Analyte	Frequency of Detection	Maximum Non-Detect	Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value	Frequency of Exceedance	Maximum Hazard Quotient[1]
1,2-Dibromoethane	0 / 2	1.00	--	--	NTRV	-- / --	NTRV
1,2-Dichloroethane	0 / 2	1.00	--	--	21,200	-- / --	4.72E-05
1,2-Dichloropropane	0 / 2	1.00	--	--	32,700	-- / --	3.06E-05
1,3,5-Trimethylbenzene	0 / 2	1.00	--	--	NTRV	-- / --	NTRV
1,3-Dichloropropane	0 / 2	1.00	--	--	32,700	-- / --	3.06E-05
2,2-Dichloropropane	0 / 2	1.00	--	--	32,700	-- / --	3.06E-05
o-Chlorotoluene	0 / 2	1.00	--	--	NTRV	-- / --	NTRV
2-Hexanone	0 / 2	3.00	--	--	NTRV	-- / --	NTRV
p-Chlorotoluene	0 / 2	1.00	--	--	NTRV	-- / --	NTRV
4-Methyl-2-Pentanone (MIBK)	0 / 2	3.00	--	--	NTRV	-- / --	NTRV
Benzene	0 / 2	0.50	--	--	255	-- / --	0.0020
Bromobenzene	0 / 2	1.00	--	--	NTRV	-- / --	NTRV
Bromochloromethane	0 / 2	1.00	--	--	NTRV	-- / --	NTRV
Bromodichloromethane	0 / 2	1.00	--	--	540	-- / --	0.0019
Bromoform	0 / 2	1.00	--	--	15,900	-- / --	6.29E-05
Bromomethane	0 / 2	2.00	--	--	NTRV	-- / --	NTRV
Carbon Disulfide	0 / 2	1.00	--	--	94.1	-- / --	0.011
Carbon Tetrachloride	0 / 2	1.00	--	--	2,980	-- / --	3.36E-04
Chlorobenzene	0 / 2	1.00	--	--	40,000	-- / --	2.50E-05
Chloroethane	0 / 2	2.00	--	--	NTRV	-- / --	NTRV
Chloroform	0 / 2	1.00	--	--	1,190	-- / --	8.40E-04
Chloromethane	0 / 2	2.00	--	--	NTRV	-- / --	NTRV
cis-1,2-Dichloroethene	0 / 2	1.00	--	--	784	-- / --	0.0013
cis-1,3-Dichloropropene	0 / 2	1.00	--	--	398	-- / --	0.0025
Cyclohexane	0 / 2	1.00	--	--	NTRV	-- / --	NTRV
Dibromochloromethane	0 / 2	1.00	--	--	2,050	-- / --	4.88E-04
Dibromomethane	0 / 2	1.00	--	--	65,000	-- / --	1.54E-05
Dichlorodifluoromethane	0 / 2	2.00	--	--	39,500	-- / --	5.06E-05
Ethylbenzene	0 / 2	1.00	--	--	5,160	-- / --	1.94E-04
1,1,2-Trichlorotrifluoroethane	0 / 2	2.00	--	--	NTRV	-- / --	NTRV
Hexachlorobutadiene	0 / 2	2.00	--	--	NTRV	-- / --	NTRV

TABLE 7-15

Screening Statistics for Direct Exposures --SWMU 19 Surface Soil

Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Analyte	Frequency of Detection	Maximum Non-Detect	Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value	Frequency of Exceedance	Maximum Hazard Quotient[1]
Isopropylbenzene	0 / 2	1.00	--	--	NTRV	-- / --	NTRV
m- & p-Xylene	0 / 2	1.00	--	--	NTRV	-- / --	NTRV
Methyl acetate	0 / 2	2.00	--	--	NTRV	-- / --	NTRV
Methyl tert-Butyl Ether (MTBE)	0 / 2	0.50	--	--	NTRV	-- / --	NTRV
Methylcyclohexane	0 / 2	1.00	--	--	NTRV	-- / --	NTRV
Methylene chloride	0 / 2	2.00	--	--	NTRV	-- / --	NTRV
n-Butylbenzene	0 / 2	1.00	--	--	NTRV	-- / --	NTRV
n-Propylbenzene	0 / 2	1.00	--	--	NTRV	-- / --	NTRV
Naphthalene	0 / 2	1.00	--	--	99.4	-- / --	0.010
o-Xylene	0 / 2	1.00	--	--	NTRV	-- / --	NTRV
p-Isopropyltoluene	0 / 2	1.00	--	--	NTRV	-- / --	NTRV
sec-Butylbenzene	0 / 2	1.00	--	--	NTRV	-- / --	NTRV
Styrene	0 / 2	1.00	--	--	4,690	-- / --	2.13E-04
tert-Butylbenzene	0 / 2	1.00	--	--	NTRV	-- / --	NTRV
Tetrachloroethene (PCE)	0 / 2	1.00	--	--	9,920	-- / --	1.01E-04
Toluene	0 / 2	1.00	--	--	5,450	-- / --	1.83E-04
trans-1,2-Dichloroethene	0 / 2	1.00	--	--	784	-- / --	0.0013
trans-1,3-Dichloropropene	0 / 2	1.00	--	--	398	-- / --	0.0025
Trichloroethene (TCE)	0 / 2	1.00	--	--	12,400	-- / --	8.06E-05
Trichlorofluoromethane(Freon-11)	0 / 2	2.00	--	--	16,400	-- / --	1.22E-04
Vinyl acetate	0 / 2	2.00	--	--	NTRV	-- / --	NTRV
Vinyl Chloride	0 / 2	1.00	--	--	646	-- / --	0.0015

Notes:

[1]HQs greater than 1 are in bold

Shaded cells indicate hazard quotient based on reporting limits

NTRV = NO TR Value

TABLE 7-16
Screening Statistics for Direct Exposures -- SWMU 29 Surface Soil
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Analyte	Frequency of Detection	Maximum Non-Detect	Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value	Frequency of Exceedance	Maximum Hazard Quotient[1]
Detected Constituents							
METAL (MG/KG)							
Arsenic	2 / 2	--	15.1	S29-SS01-0002-120811	18.0	0 / 2	0.84
Barium	2 / 2	--	104	S29-SS01-0002-120811	330	0 / 2	0.32
Cadmium	2 / 2	--	1.47	S29-SS01-0002-120811	32.0	0 / 2	0.046
Chromium	2 / 2	--	23.1	S29-SS01-0002-120811	0.40	2 / 2	**57.8**
Lead	2 / 2	--	23.8	S29-SS01-0002-120811	120	0 / 2	0.20
Mercury	2 / 2	--	0.029	S29-SS01-0002-120811	0.10	0 / 2	0.29
Selenium	2 / 2	--	3.58	S29-SS01-0002-120811	0.52	2 / 2	**6.88**
Semivolatile Organic Compounds (UG/KG)							
Benzo(a)anthracene	2 / 2	--	13.0	S29-SS01-0002-120811	5,210	0 / 2	0.0025
Benzo(a)pyrene	2 / 2	--	20.0	S29-SS01-0002-120811	1,520	0 / 2	0.013
Benzo(b)fluoranthene	2 / 2	--	25.0	S29-SS01-0002-120811	59,800	0 / 2	4.18E-04
Benzo(g,h,i)perylene	2 / 2	--	21.0	S29-SS01-0002-120811	119,000	0 / 2	1.76E-04
Benzo(k)fluoranthene	2 / 2	--	12.0	S29-SS01-0002-120811	148,000	0 / 2	8.11E-05
Chrysene	2 / 2	--	17.0	S29-SS01-0002-120811	4,730	0 / 2	0.0036
Fluoranthene	2 / 2	--	23.0	S29-SS01-0002-120811	122,000	0 / 2	1.89E-04
Indeno(1,2,3-cd)pyrene	2 / 2	--	14.0	S29-SS01-0002-120811	109,000	0 / 2	1.28E-04
Phenanthrene	2 / 2	--	12.0	S29-SS01-0002-120811	45,700	0 / 2	2.63E-04
Phenol	1 / 2	20.0	27.0	S29-SS01-0002-120811	30,000	0 / 2	9.00E-04
Pyrene	2 / 2	--	23.0	S29-SS01-0002-120811	45,700	0 / 2	5.03E-04
Volatile Organic Compounds (UG/KG)							
2-Butanone (MEK)	2 / 2	--	12.0	S29-SS01-0002-120811	89,600	0 / 2	1.34E-04
Acetone	2 / 2	--	100	S29-SS01-0002-120811	2,500	0 / 2	0.040
Benzene	1 / 2	0.50	1.00	S29-SS01-0002-120811	255	0 / 2	0.0039
Carbon Disulfide	1 / 2	1.00	4.00	S29-SS01-0002-120811	94.1	0 / 2	0.043
Cyclohexane	1 / 2	1.00	2.00	S29-SS01-0002-120811	NTRV	-- / --	NTRV
Methylcyclohexane	1 / 2	1.00	2.00	S29-SS01-0002-120811	NTRV	-- / --	NTRV
Toluene	1 / 2	1.00	1.00	S29-SS01-0002-120811	5,450	0 / 2	1.83E-04
Non-Detected Constituents							

TABLE 7-16
Screening Statistics for Direct Exposures -- SWMU 29 Surface Soil
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Analyte	Frequency of Detection	Maximum Non-Detect	Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value	Frequency of Exceedance	Maximum Hazard Quotient[1]
METAL (MG/KG)							
Silver	0 / 2	0.10	--	--	560	-- / --	1.79E-04
Semivolatile Organic Compounds (UG/KG)							
1,1-Biphenyl	0 / 2	21.0	--	--	NTRV	-- / --	NTRV
1,2-Dichlorobenzene	0 / 2	1.00	--	--	20,000	-- / --	5.00E-05
1,3-Dichlorobenzene	0 / 2	1.00	--	--	20,000	-- / --	5.00E-05
1,4-Dichlorobenzene	0 / 2	1.00	--	--	20,000	-- / --	5.00E-05
1,4-Dioxane (p-Dioxane)	0 / 2	120	--	--	NTRV	-- / --	NTRV
2,4,5-Trichlorophenol	0 / 2	21.0	--	--	9,000	-- / --	0.0023
2,4,6-Trichlorophenol	0 / 2	21.0	--	--	4,000	-- / --	0.0053
2,4-Dichlorophenol	0 / 2	21.0	--	--	20,000	-- / --	0.0011
2,4-Dimethylphenol	0 / 2	21.0	--	--	10.0	-- / --	**2.10**
2,4-Dinitrophenol	0 / 2	410	--	--	20,000	-- / --	0.021
2,4-Dinitrotoluene	0 / 2	82.0	--	--	NTRV	-- / --	NTRV
2,6-Dinitrotoluene	0 / 2	21.0	--	--	NTRV	-- / --	NTRV
2-Chloronaphthalene	0 / 2	9.00	--	--	NTRV	-- / --	NTRV
2-Chlorophenol	0 / 2	21.0	--	--	7,000	-- / --	0.0030
2-Methylnaphthalene	0 / 2	4.00	--	--	3,240	-- / --	0.0012
2-Methylphenol	0 / 2	21.0	--	--	NTRV	-- / --	NTRV
2-Nitroaniline	0 / 2	21.0	--	--	74,100	-- / --	2.83E-04
2-Nitrophenol	0 / 2	21.0	--	--	1,600	-- / --	0.013
3,3-Dichlorobenzidine	0 / 2	120	--	--	646	-- / --	0.19
3-Nitroaniline	0 / 2	82.0	--	--	3,160	-- / --	0.026
4,6-Dinitro-2-methylphenol	0 / 2	210	--	--	NTRV	-- / --	NTRV
4-Bromophenyl Phenyl Ether	0 / 2	21.0	--	--	NTRV	-- / --	NTRV
4-Chloro-3-methylphenol	0 / 2	21.0	--	--	NTRV	-- / --	NTRV
4-Chloroaniline	0 / 2	21.0	--	--	20,000	-- / --	0.0011
4-Chlorophenyl Phenyl Ether	0 / 2	21.0	--	--	NTRV	-- / --	NTRV
4-Methylphenol	0 / 2	21.0	--	--	NTRV	-- / --	NTRV
4-Nitroaniline	0 / 2	82.0	--	--	21,900	-- / --	0.0037
4-Nitrophenol	0 / 2	210	--	--	7,000	-- / --	0.030

TABLE 7-16
Screening Statistics for Direct Exposures -- SWMU 29 Surface Soil
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Analyte	Frequency of Detection	Maximum Non-Detect	Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value	Frequency of Exceedance	Maximum Hazard Quotient[1]
Acenaphthene	0 / 2	4.00	--	--	20,000	-- / --	2.00E-04
Acenaphthylene	0 / 2	4.00	--	--	682,000	-- / --	5.87E-06
Anthracene	0 / 2	4.00	--	--	1,480,000	-- / --	2.70E-06
Benzyl alcohol	0 / 2	210	--	--	NTRV	-- / --	NTRV
bis(2-Chloroethoxy)methane	0 / 2	21.0	--	--	302	-- / --	0.070
bis(2-Chloroethyl)ether	0 / 2	21.0	--	--	23,700	-- / --	8.86E-04
bis(2-Ethylhexyl)phthalate	0 / 2	82.0	--	--	925	-- / --	0.089
Butyl Benzyl Phthalate	0 / 2	82.0	--	--	NTRV	-- / --	NTRV
Carbazole	0 / 2	21.0	--	--	NTRV	-- / --	NTRV
di-n-Butyl Phthalate	0 / 2	82.0	--	--	150	-- / --	0.55
di-n-Octyl Phthalate	0 / 2	82.0	--	--	NTRV	-- / --	NTRV
Dibenz(a,h)anthracene	0 / 2	4.00	--	--	18,400	-- / --	2.17E-04
Dibenzofuran	0 / 2	21.0	--	--	NTRV	-- / --	NTRV
Diethyl phthalate	0 / 2	82.0	--	--	100,000	-- / --	8.20E-04
Dimethyl phthalate	0 / 2	82.0	--	--	734,000	-- / --	1.12E-04
Fluorene	0 / 2	4.00	--	--	30,000	-- / --	1.33E-04
Hexachlorobenzene	0 / 2	4.00	--	--	NTRV	-- / --	NTRV
Hexachlorocyclopentadiene	0 / 2	210	--	--	NTRV	-- / --	NTRV
Hexachloroethane	0 / 2	41.0	--	--	NTRV	-- / --	NTRV
Isophorone	0 / 2	21.0	--	--	NTRV	-- / --	NTRV
N-Nitrosodipropylamine	0 / 2	21.0	--	--	NTRV	-- / --	NTRV
N-Nitrosodiphenylamine	0 / 2	21.0	--	--	545	-- / --	0.039
Nitrobenzene	0 / 2	21.0	--	--	NTRV	-- / --	NTRV
Pentachlorophenol	0 / 2	41.0	--	--	3,000	-- / --	0.014
Volatile Organic Compounds (UG/KG)							
1,1,1,2-Tetrachloroethane	0 / 2	1.00	--	--	127	-- / --	0.0079
1,1,1-Trichloroethane	0 / 2	1.00	--	--	29,800	-- / --	3.36E-05
1,1,2,2-Tetrachloroethane	0 / 2	1.00	--	--	127	-- / --	0.0079
1,1,2-Trichloroethane	0 / 2	1.00	--	--	28,600	-- / --	3.50E-05
1,1-Dichloroethane	0 / 2	1.00	--	--	20,100	-- / --	4.98E-05
1,1-Dichloroethene	0 / 2	1.00	--	--	8,280	-- / --	1.21E-04

TABLE 7-16
Screening Statistics for Direct Exposures -- SWMU 29 Surface Soil
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Analyte	Frequency of Detection	Maximum Non-Detect	Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value	Frequency of Exceedance	Maximum Hazard Quotient[1]
1,1-Dichloropropene	0 / 2	1.00	--	--	398	-- / --	0.0025
1,2,3-Trichlorobenzene	0 / 2	1.00	--	--	20,000	-- / --	5.00E-05
1,2,3-Trichloropropane	0 / 2	1.00	--	--	3,360	-- / --	2.98E-04
1,2,4-Trichlorobenzene	0 / 2	1.00	--	--	20,000	-- / --	5.00E-05
1,2,4-Trimethylbenzene	0 / 2	1.00	--	--	NTRV	-- / --	NTRV
1,2-Dibromo-3-Chloropropane	0 / 2	2.00	--	--	35.2	-- / --	0.057
1,2-Dibromoethane	0 / 2	1.00	--	--	NTRV	-- / --	NTRV
1,2-Dichloroethane	0 / 2	1.00	--	--	21,200	-- / --	4.72E-05
1,2-Dichloropropane	0 / 2	1.00	--	--	32,700	-- / --	3.06E-05
1,3,5-Trimethylbenzene	0 / 2	1.00	--	--	NTRV	-- / --	NTRV
1,3-Dichloropropane	0 / 2	1.00	--	--	32,700	-- / --	3.06E-05
2,2-Dichloropropane	0 / 2	1.00	--	--	32,700	-- / --	3.06E-05
o-Chlorotoluene	0 / 2	1.00	--	--	NTRV	-- / --	NTRV
2-Hexanone	0 / 2	3.00	--	--	NTRV	-- / --	NTRV
p-Chlorotoluene	0 / 2	1.00	--	--	NTRV	-- / --	NTRV
4-Methyl-2-Pentanone (MIBK)	0 / 2	3.00	--	--	NTRV	-- / --	NTRV
Bromobenzene	0 / 2	1.00	--	--	NTRV	-- / --	NTRV
Bromochloromethane	0 / 2	1.00	--	--	NTRV	-- / --	NTRV
Bromodichloromethane	0 / 2	1.00	--	--	540	-- / --	0.0019
Bromoform	0 / 2	1.00	--	--	15,900	-- / --	6.29E-05
Bromomethane	0 / 2	2.00	--	--	NTRV	-- / --	NTRV
Carbon Tetrachloride	0 / 2	1.00	--	--	2,980	-- / --	3.36E-04
Chlorobenzene	0 / 2	1.00	--	--	40,000	-- / --	2.50E-05
Chloroethane	0 / 2	2.00	--	--	NTRV	-- / --	NTRV
Chloroform	0 / 2	1.00	--	--	1,190	-- / --	8.40E-04
Chloromethane	0 / 2	2.00	--	--	NTRV	-- / --	NTRV
cis-1,2-Dichloroethene	0 / 2	1.00	--	--	784	-- / --	0.0013
cis-1,3-Dichloropropene	0 / 2	1.00	--	--	398	-- / --	0.0025
Dibromochloromethane	0 / 2	1.00	--	--	2,050	-- / --	4.88E-04
Dibromomethane	0 / 2	1.00	--	--	65,000	-- / --	1.54E-05
Dichlorodifluoromethane	0 / 2	2.00	--	--	39,500	-- / --	5.06E-05

TABLE 7-16
Screening Statistics for Direct Exposures -- SWMU 29 Surface Soil
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Analyte	Frequency of Detection	Maximum Non-Detect	Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value	Frequency of Exceedance	Maximum Hazard Quotient[1]
Ethylbenzene	0 / 2	1.00	--	--	5,160	-- / --	1.94E-04
1,1,2-Trichlorotrifluoroethane	0 / 2	2.00	--	--	NTRV	-- / --	NTRV
Hexachlorobutadiene	0 / 2	2.00	--	--	NTRV	-- / --	NTRV
Isopropylbenzene	0 / 2	1.00	--	--	NTRV	-- / --	NTRV
m- & p-Xylene	0 / 2	1.00	--	--	NTRV	-- / --	NTRV
Methyl acetate	0 / 2	2.00	--	--	NTRV	-- / --	NTRV
Methyl tert-Butyl Ether (MTBE)	0 / 2	0.60	--	--	NTRV	-- / --	NTRV
Methylene chloride	0 / 2	2.00	--	--	NTRV	-- / --	NTRV
n-Butylbenzene	0 / 2	1.00	--	--	NTRV	-- / --	NTRV
n-Propylbenzene	0 / 2	1.00	--	--	NTRV	-- / --	NTRV
Naphthalene	0 / 2	1.00	--	--	99.4	-- / --	0.010
o-Xylene	0 / 2	1.00	--	--	NTRV	-- / --	NTRV
p-Isopropyltoluene	0 / 2	1.00	--	--	NTRV	-- / --	NTRV
sec-Butylbenzene	0 / 2	1.00	--	--	NTRV	-- / --	NTRV
Styrene	0 / 2	1.00	--	--	4,690	-- / --	2.13E-04
tert-Butylbenzene	0 / 2	1.00	--	--	NTRV	-- / --	NTRV
Tetrachloroethene (PCE)	0 / 2	1.00	--	--	9,920	-- / --	1.01E-04
trans-1,2-Dichloroethene	0 / 2	1.00	--	--	784	-- / --	0.0013
trans-1,3-Dichloropropene	0 / 2	1.00	--	--	398	-- / --	0.0025
Trichloroethene (TCE)	0 / 2	1.00	--	--	12,400	-- / --	8.06E-05
Trichlorofluoromethane(Freon-11)	0 / 2	2.00	--	--	16,400	-- / --	1.22E-04
Vinyl acetate	0 / 2	2.00	--	--	NTRV	-- / --	NTRV
Vinyl Chloride	0 / 2	1.00	--	--	646	-- / --	0.0015

Notes:
[1]HQs greater than 1 are in bold
Shaded cells indicate hazard quotient based on reporting limits
NTRV = NO TR Value

TABLE 7-17
Summary of Hazard Quotients for Food Web Exposures - SWMU 17 Surface Sediment
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Chemical	Muskrat			Marsh wren			Mallard		
	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC
Inorganics									
Arsenic	<1	<1	<1	<1	<1	<1	<1	<1	<1
Selenium	<1	<1	<1	<1	<1	<1	<1	<1	<1
Semivolatile Organics									
Acenaphthylene	<1	<1	<1	<1	<1	<1	<1	<1	<1

TABLE 7-18
Summary of Hazard Quotients for Food Web Exposures - SWMU 17 Surface Soil
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Chemical	Short-tailed shrew			White-footed mouse			White-tailed deer			Red fox			American robin			Mourning dove			Red-tailed hawk		
	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC
Inorganics																					
Selenium	1.52	<1	1.19	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

TABLE 7-19

Summary of Hazard Quotients for Food Web Exposures - SWMU 18 Surface Sediment

Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Chemical	Muskrat			Marsh wren			Mallard		
	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC
Inorganics									
Arsenic	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chromium	<1	<1	<1	<1	<1	<1	<1	<1	<1
Selenium	<1	<1	<1	<1	<1	<1	<1	<1	<1
Semivolatile Organics									
Acenaphthylene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Anthracene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Benzo(a)anthracene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Benzo(a)pyrene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Benzo(b)fluoranthene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Benzo(g,h,i)perylene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Benzo(k)fluoranthene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chrysene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Dibenz(a,h)anthracene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Fluoranthene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Fluorene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Indeno(1,2,3-cd)pyrene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Phenanthrene	<1	<1	<1	<1	<1	<1	<1	<1	<1
Pyrene	<1	<1	<1	<1	<1	<1	<1	<1	<1

TABLE 7-20
Summary of Hazard Quotients for Food Web Exposures - SWMU 19 Surface Soil
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Chemical	Short-tailed shrew			White-footed mouse			White-tailed deer			Red fox			American robin			Mourning dove			Red-tailed hawk		
	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC
Inorganics																					
Chromium	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

TABLE 7-21
Summary of Hazard Quotients for Food Web Exposures - SWMU 29 Surface Soil
Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

Chemical	Short-tailed shrew			White-footed mouse			White-tailed deer			Red fox			American robin			Mourning dove		
	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC	NOAEL	LOAEL	MATC
Inorganics																		
Chromium	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Selenium	1.53	<1	1.19	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

TABLE 7-22

Summary of COPECs Identified by the screening-level Ecological Assessment

Site Investigation Report, Dow Hanging Rock, Ironton, Ohio

	Chemicals of Potential Ecological Concern (COPECs)			
	Direct Exposures		Indirect (Food Web) Exposures	
Site	**Surface Soil**	**Surface Sediment**	**Surface Soil**	**Surface Sediment**
SWMU-17 Stormwater Drainage Ditch	Chromium, Selenium	Arsenic, Selenium, acenaphthylene	Selenium	---
SWMU-18 Drainage Ditch to Big Thief Creek	---	Arsenic, Chromium, Selenium, 13 PAHs	---	---
SWMU-19 Drainage Ditch to North	Chromium	---	---	---
SWMU-29 Former Used Filter Sand Pile	Chromium, Selenium	---	Selenium	---

Figures

FIGURE 1-1
Site Location
Dow Hanging Rock Phase 1 RFI
Ironton, Ohio

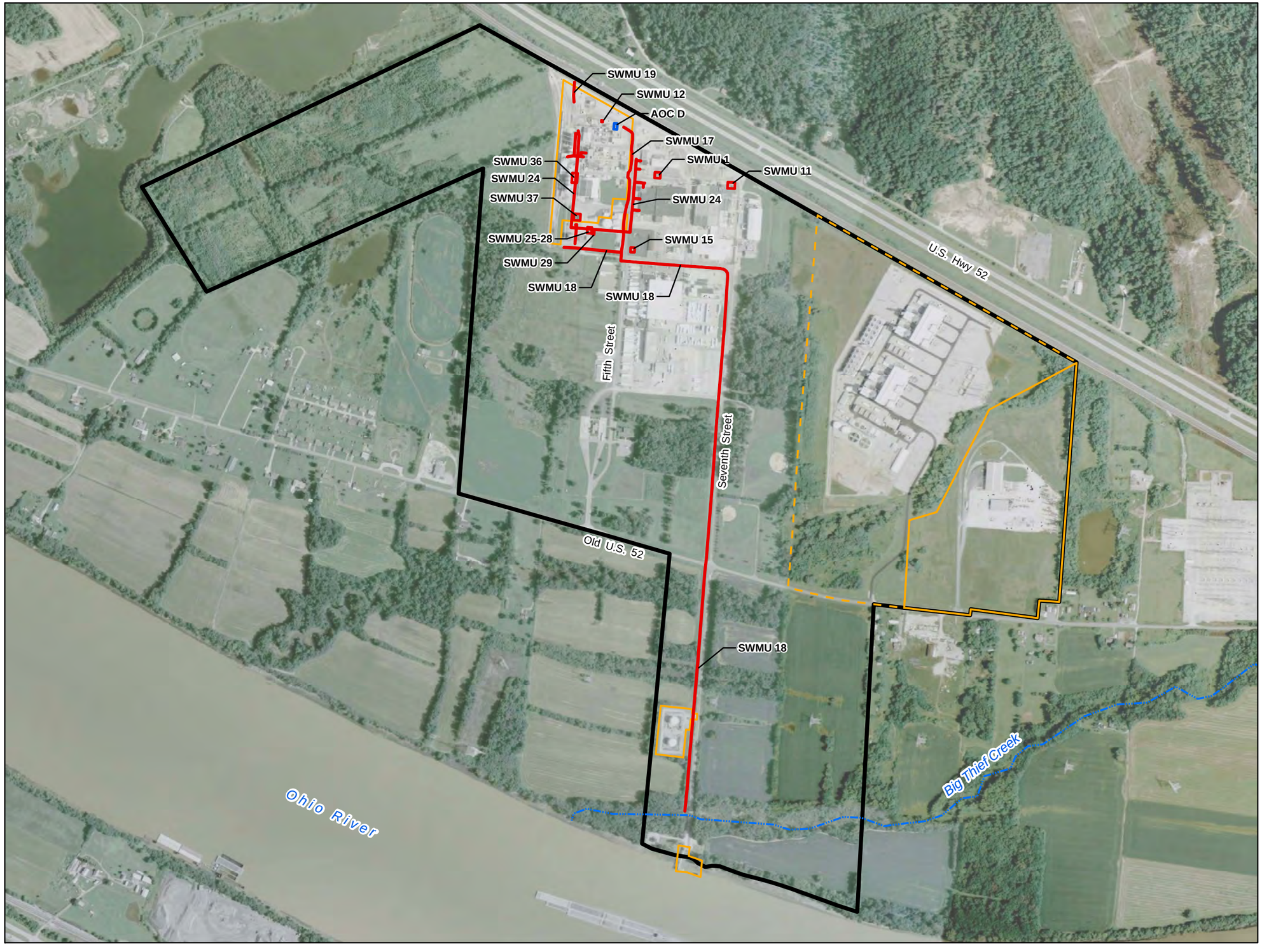
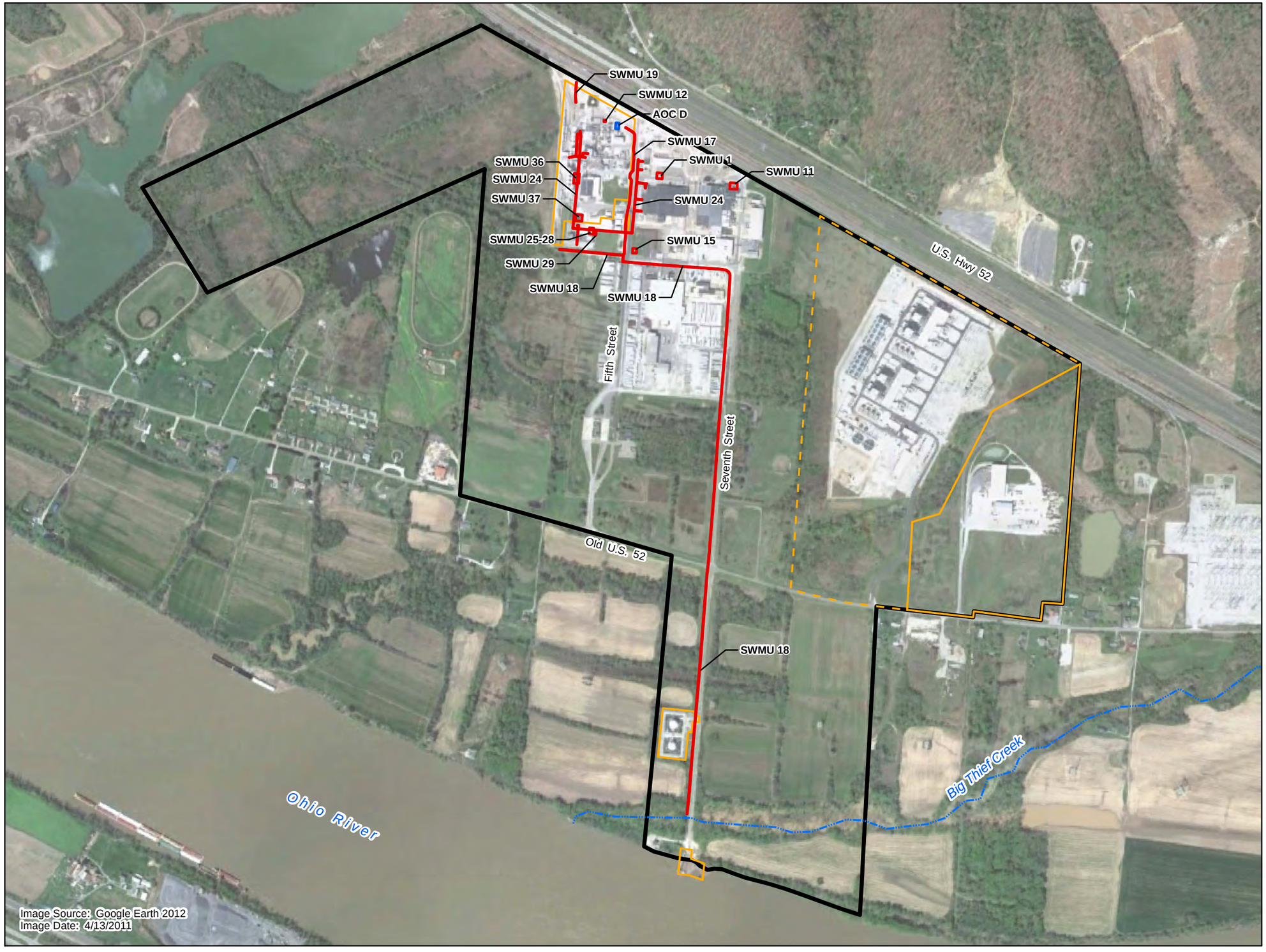


FIGURE 1-2
Site Layout
Dow Hanging Rock Phase 1 RFI
Ironton, Ohio

CH2MHILL

RDD \\BALDUR\PROJ\DOW_HANGING_ROCK_404798\MAPFILES\RFI_REPORT\FIG2-2_SITE LAYOUT_RFI.MXD MSCHROCK 3/7/2012 12:34:13 PM



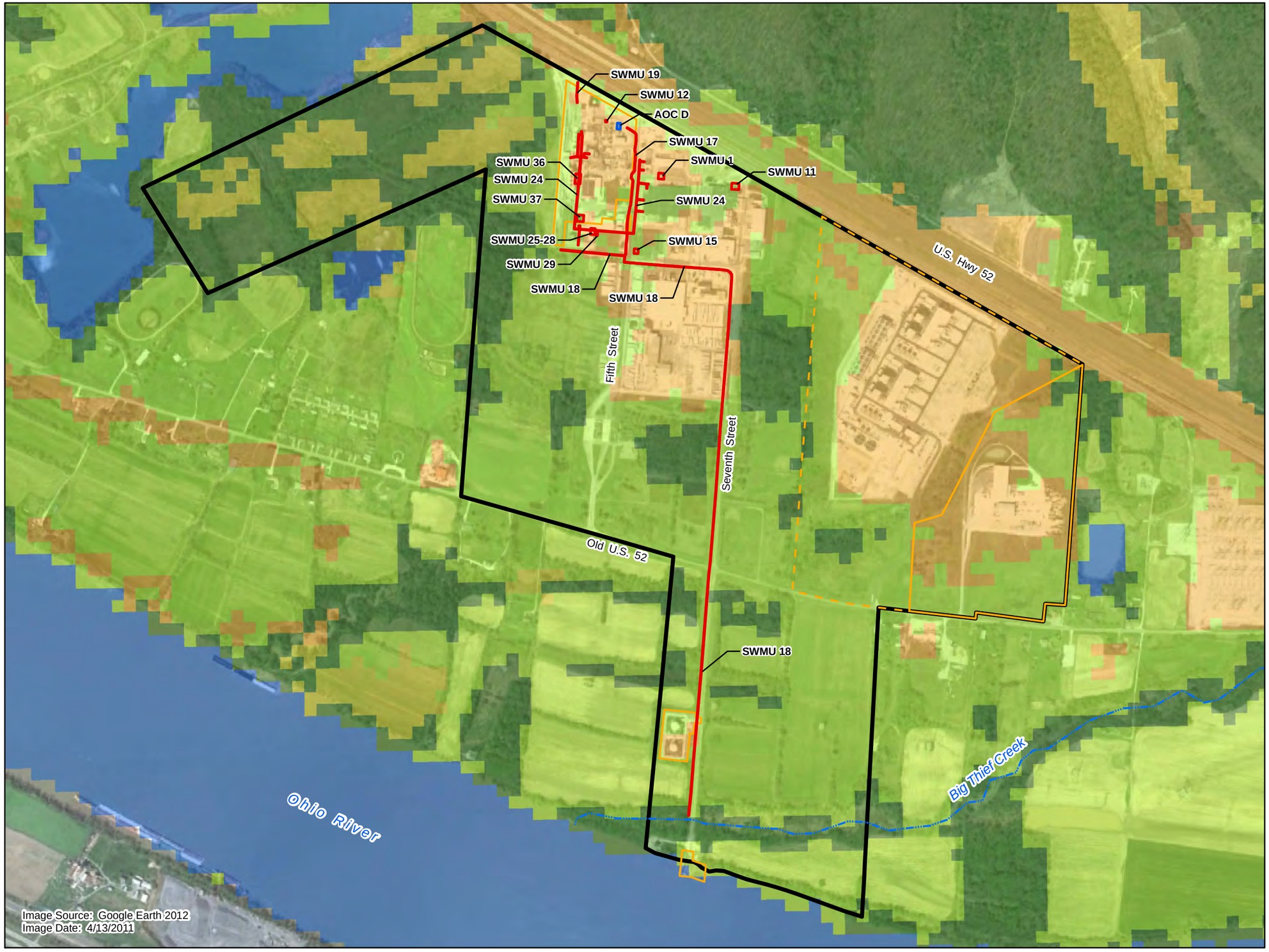
LEGEND

- Approximate Site Boundary
- Property Owned or Leased by Others (Dashed = Assumed Boundary)
- AOC
- SWMU
- Big Thief Creek

N

FIGURE 2-1
Site Features
Dow Hanging Rock Phase 1 RFI
Ironton, Ohio

CH2MHILL



LEGEND

- Big Thief Creek
- AOC
- SWMU
- Property Owned or Leased by Others (Dashed = Assumed Boundary)
- Approximate Site Boundary

Land Use / Land Cover

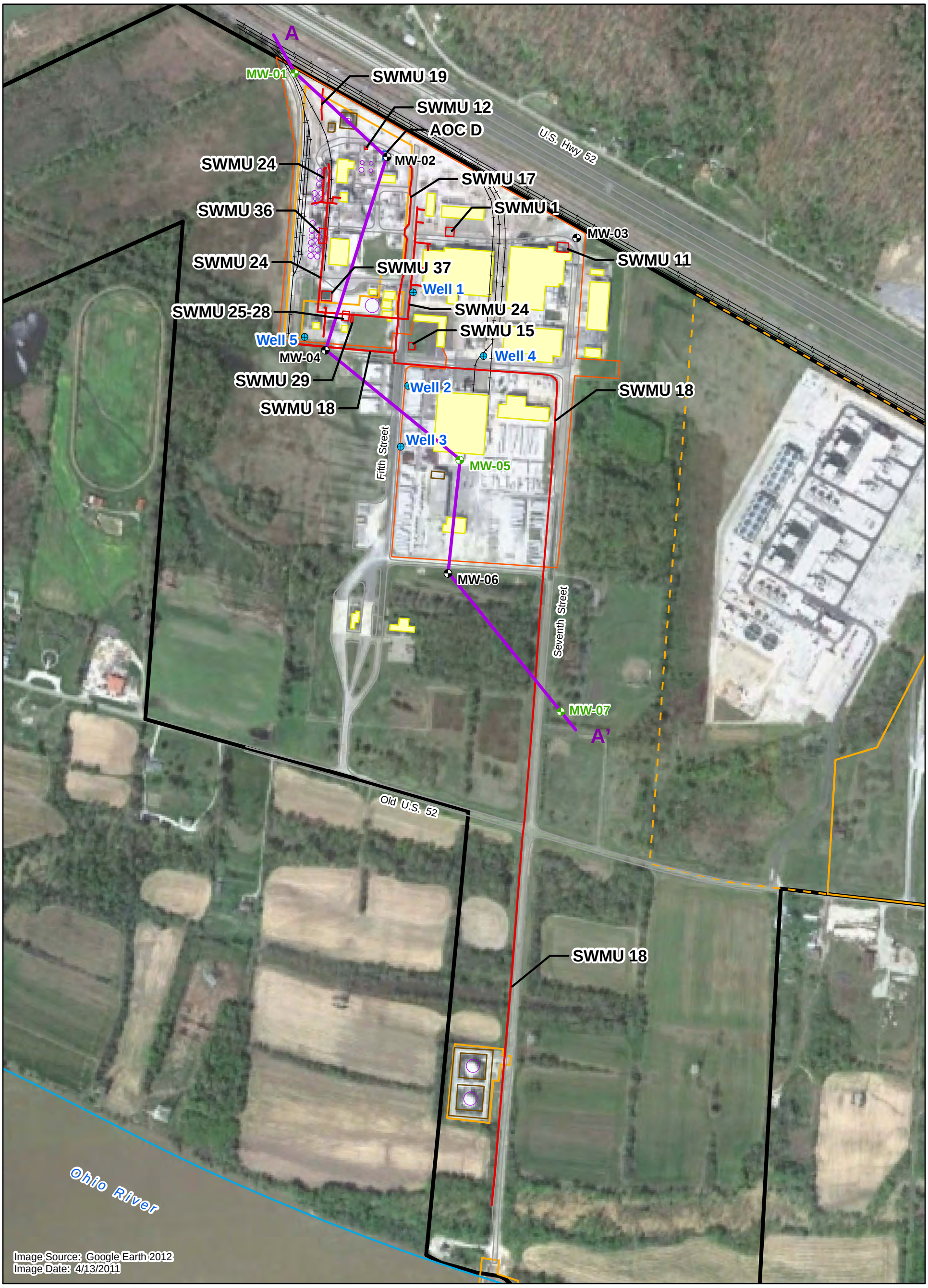
- Open Water
- Developed
- Barren Land
- Forest
- Shrubs/Grassland
- Agriculture

Land Use/Land Cover Source:
National Land Cover Dataset - USDA NRCS

N

FIGURE 2-2
Land Use and Land Cover
Dow Hanging Rock Phase 1 RFI
Ironton, Ohio

CH2MHILL



LEGEND

- Approximate Site Boundary
- Property Owned or Leased by Others (Dashed = Assumed Boundary)
- AOC
- SWMU
- Building
- Miscellaneous Structure
- Tank
- Railroad
- Fence
- Edge of Road
- Cross Section Location
- Approximate Water Well Location
- Monitoring Well
- Monitoring Well / Deep Boring

N

0 250 500
Feet

FIGURE 4-1
Cross Section Location
Dow Hanging Rock Phase 1 RFI
Ironton, Ohio

CH2MHILL

RDD \\BALDUR\PROJ\DOW_HANGING_ROCK_404798\MAPFILES\RFI_REPORT\FIG4-1_CROSS_SECT_LOCATION_RFI.MXD MSCHROCK 4/3/2012 5:08:16 AM

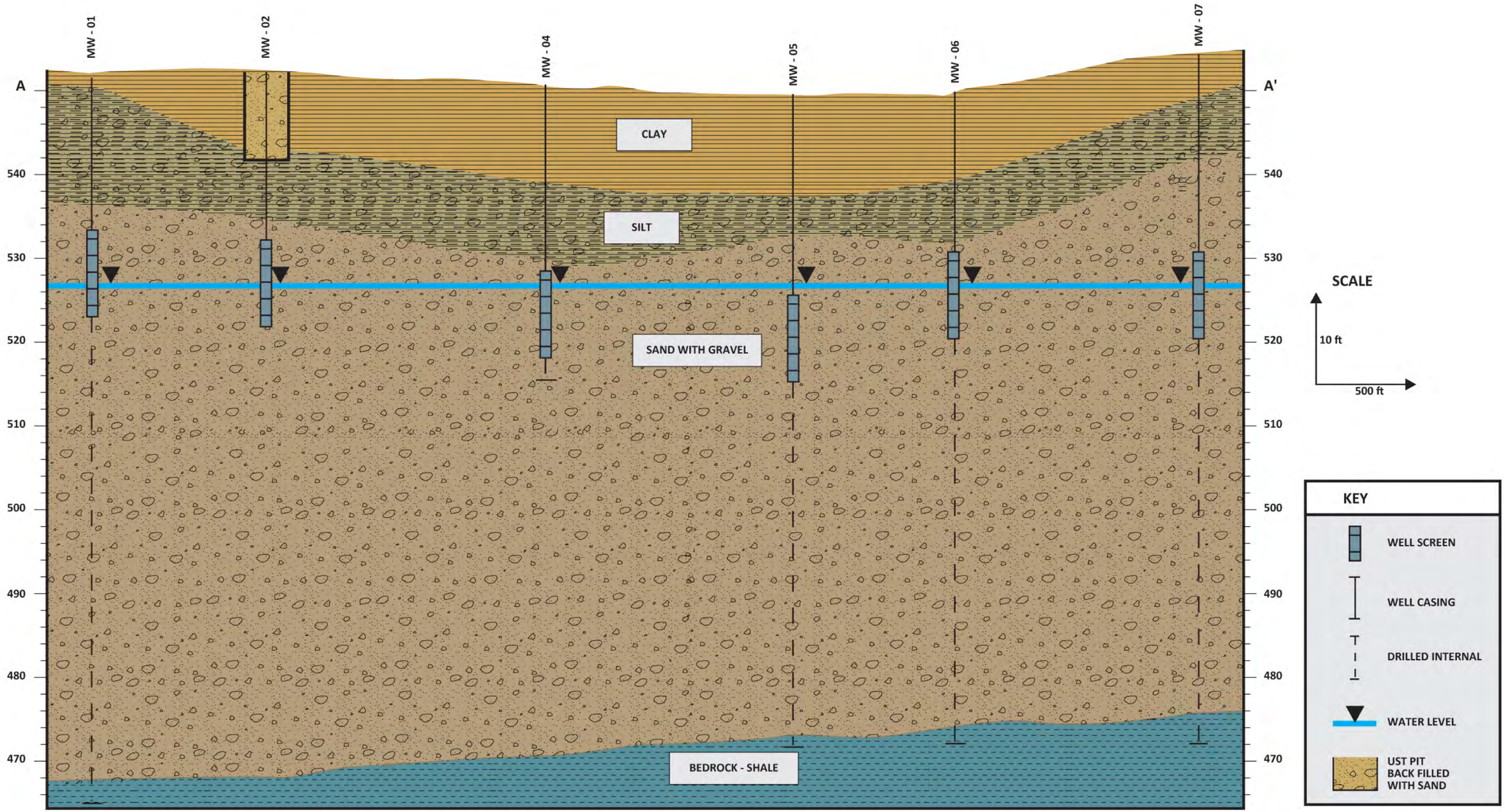
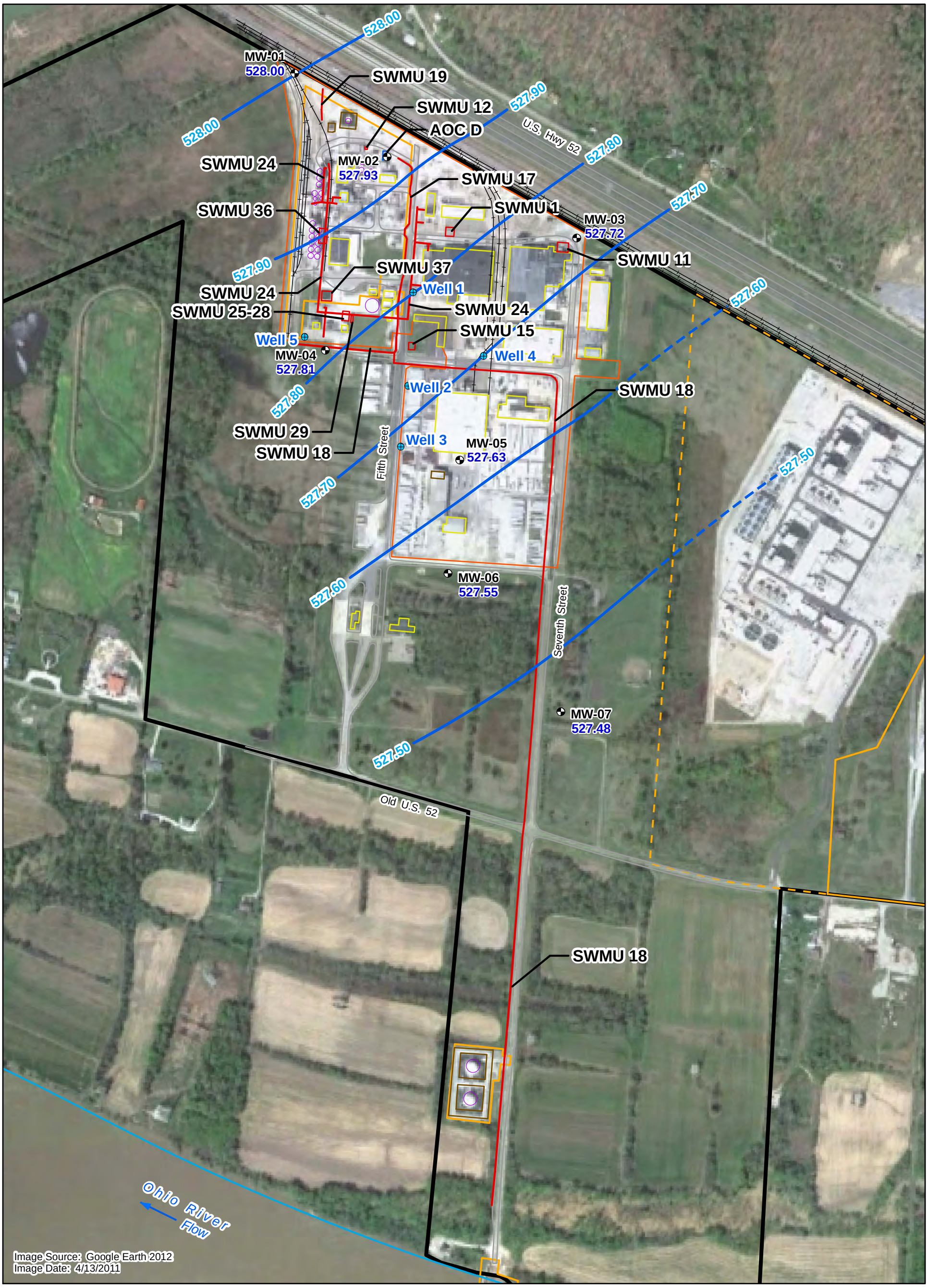


FIGURE 4 – 2
Cross Section A – A'
Dow Hanging Rock Phase 1 RFI
Ironton, OH



LEGEND

- Approximate Site Boundary
- AOC
- SWMU
- Railroad
- Fence
- Edge of Road
- Miscellaneous Structure
- Tank
- Building
- Property Owned or Leased by Others (Dashed = Assumed Boundary)
- Approximate Water Well Location
- Monitoring Well
- Groundwater Elevation Contour
- Groundwater Elevation Contour Inferred

Note:
1. Monitoring wells MW-01 through MW-07 were gauged on 1/17/2012. This data was used to generate the potentiometric surface.

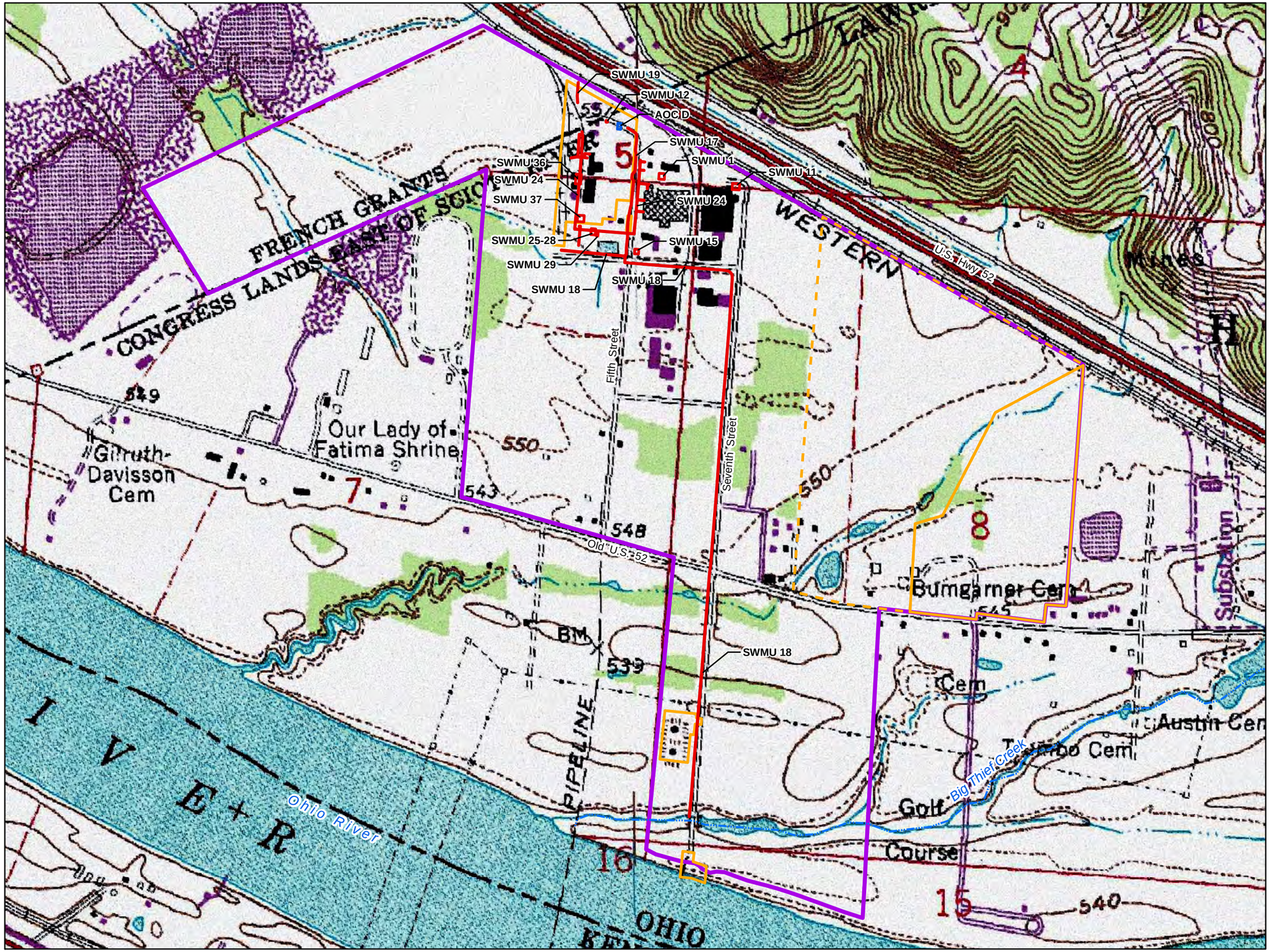
N

0 250 500
Feet

FIGURE 4-3
Potentiometric Surface Map
Dow Hanging Rock Phase 1 RFI
Ironton, Ohio

CH2MHILL

RDD \\BALDUR\PROJ\DOW_HANGING_ROCK_404798\MAPFILES\RFI_REPORT\FIG4-3_POT_SURF_RFI.MXD MSCHROCK 4/3/2012 5:04:29 AM



LEGEND

- Approximate Site Boundary
- Property Owned or Leased by Others (Dashed = Assumed Boundary)
- AOC
- SWMU
- Big Thief Creek

Source: USGS DRG Mosaic by USDA NRCS

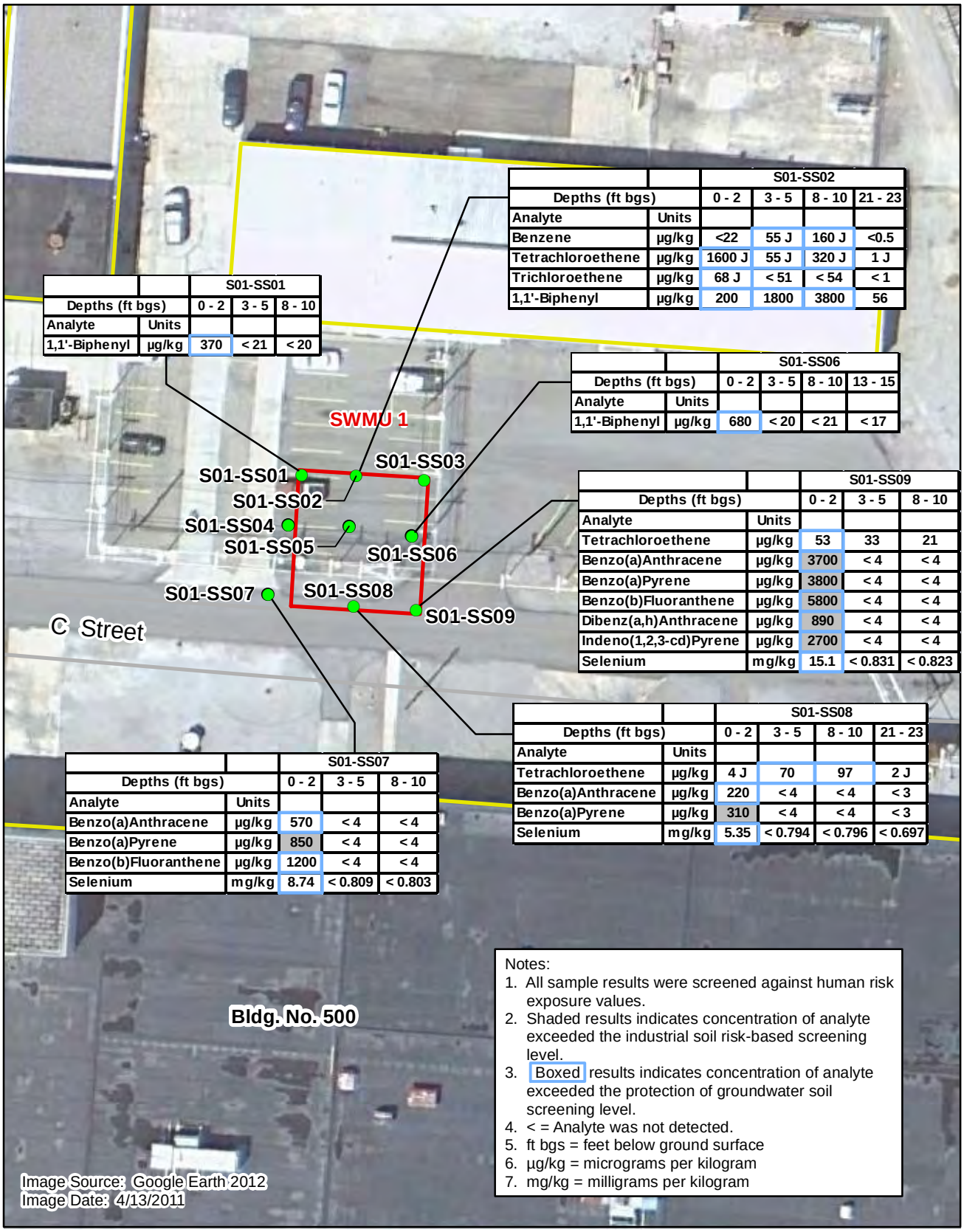
N

0 400 800
Feet

FIGURE 4-4
Site Topography
Dow Hanging Rock Phase 1 RFI
Ironton, Ohio

CH2MHILL

RDD \\BALDUR\PROJ\DOW_HANGING_ROCK_404798\MAPFILES\RFI_REPORT\FIG4-4_SITE_TOPO_RFI.MXD MSCHROCK 4/3/2012 5:06:03 AM



		S01-SS01		
Depths (ft bgs)		0 - 2	3 - 5	8 - 10
Analyte	Units			
1,1'-Biphenyl	µg/kg	370	< 21	< 20

		S01-SS02			
Depths (ft bgs)		0 - 2	3 - 5	8 - 10	21 - 23
Analyte	Units				
Benzene	µg/kg	<22	55 J	160 J	<0.5
Tetrachloroethene	µg/kg	1600 J	55 J	320 J	1 J
Trichloroethene	µg/kg	68 J	< 51	< 54	< 1
1,1'-Biphenyl	µg/kg	200	1800	3800	56

		S01-SS06			
Depths (ft bgs)		0 - 2	3 - 5	8 - 10	13 - 15
Analyte	Units				
1,1'-Biphenyl	µg/kg	680	< 20	< 21	< 17

		S01-SS09		
Depths (ft bgs)		0 - 2	3 - 5	8 - 10
Analyte	Units			
Tetrachloroethene	µg/kg	53	33	21
Benzo(a)Anthracene	µg/kg	3700	< 4	< 4
Benzo(a)Pyrene	µg/kg	3800	< 4	< 4
Benzo(b)Fluoranthene	µg/kg	5800	< 4	< 4
Dibenz(a,h)Anthracene	µg/kg	890	< 4	< 4
Indeno(1,2,3-cd)Pyrene	µg/kg	2700	< 4	< 4
Selenium	mg/kg	15.1	< 0.831	< 0.823

		S01-SS08			
Depths (ft bgs)		0 - 2	3 - 5	8 - 10	21 - 23
Analyte	Units				
Tetrachloroethene	µg/kg	4 J	70	97	2 J
Benzo(a)Anthracene	µg/kg	220	< 4	< 4	< 3
Benzo(a)Pyrene	µg/kg	310	< 4	< 4	< 3
Selenium	mg/kg	5.35	< 0.794	< 0.796	< 0.697

		S01-SS07		
Depths (ft bgs)		0 - 2	3 - 5	8 - 10
Analyte	Units			
Benzo(a)Anthracene	µg/kg	570	< 4	< 4
Benzo(a)Pyrene	µg/kg	850	< 4	< 4
Benzo(b)Fluoranthene	µg/kg	1200	< 4	< 4
Selenium	mg/kg	8.74	< 0.809	< 0.803

Notes:
1. All sample results were screened against human risk exposure values.
2. Shaded results indicates concentration of analyte exceeded the industrial soil risk-based screening level.
3. Boxed results indicates concentration of analyte exceeded the protection of groundwater soil screening level.
4. < = Analyte was not detected.
5. ft bgs = feet below ground surface
6. µg/kg = micrograms per kilogram
7. mg/kg = milligrams per kilogram

LEGEND

- SWMU
- Building
- Edge of Road
- Soil Sample Location

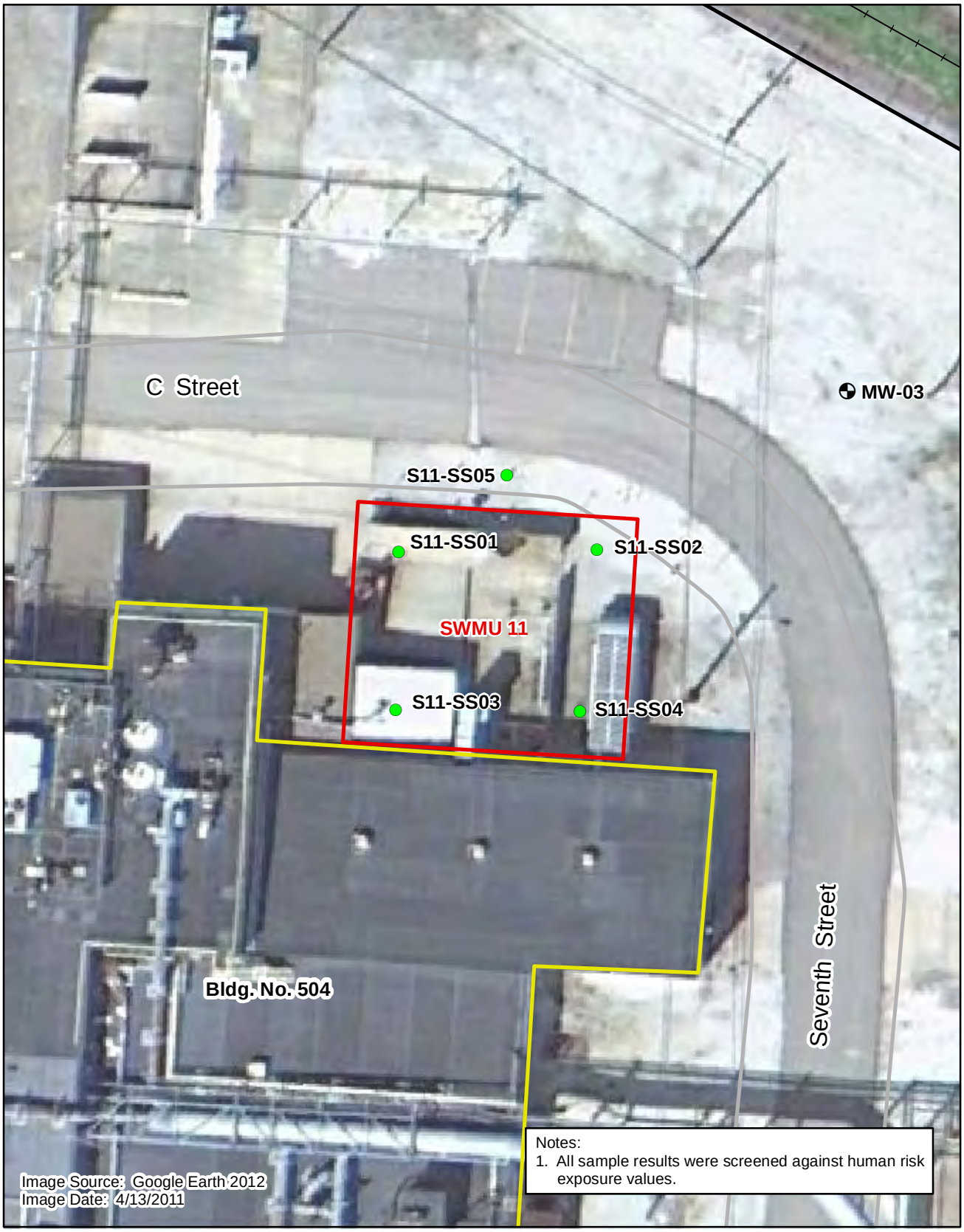
N

0 25 50
Feet

FIGURE 5-1
SWMU 1
Soil Exceedances

Dow Hanging Rock Phase 1 RFI
Ironton, Ohio

CH2MHILL



LEGEND

- Approximate Site Boundary
- SWMU
- Building
- Railroad
- Edge of Road
- Monitoring Well
- Soil Sample Location

N

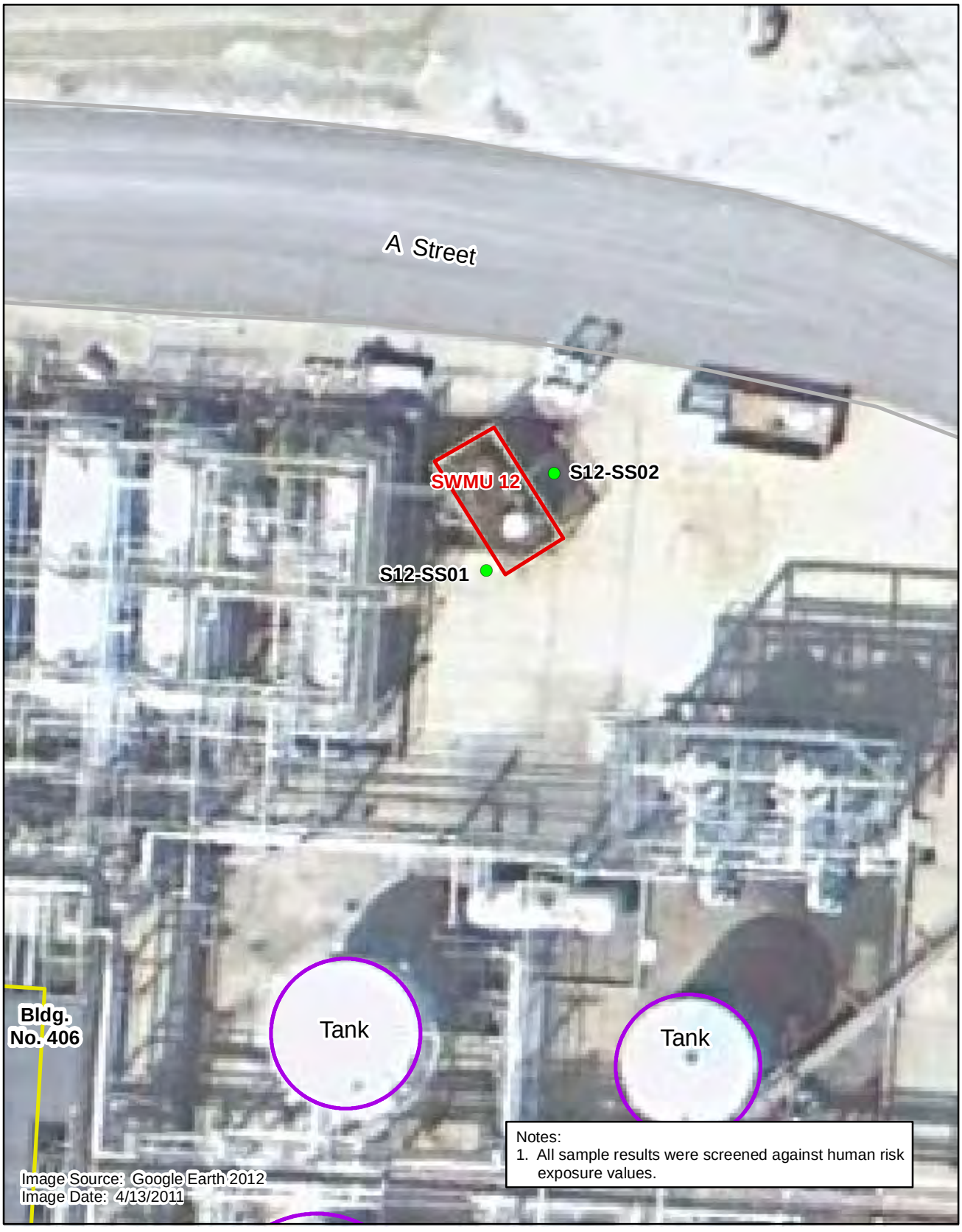
0 15 30

Feet

FIGURE 5-2
SWMU 11
Soil Sample Locations
Dow Hanging Rock Phase 1 RFI
Ironton, Ohio

CH2MHILL

RDD \\BALDUR\PROJ\DOW_HANGING_ROCK_404798\MAPFILES\RFI_REPORT\FIG5-2_SWMU_11_SAMPLE_LOCS_RFI.MXD ECLARK1 4/3/2012 11:52:23 AM



LEGEND

- SWMU
- Edge of Road
- Building
- Soil Sample Location
- Tank

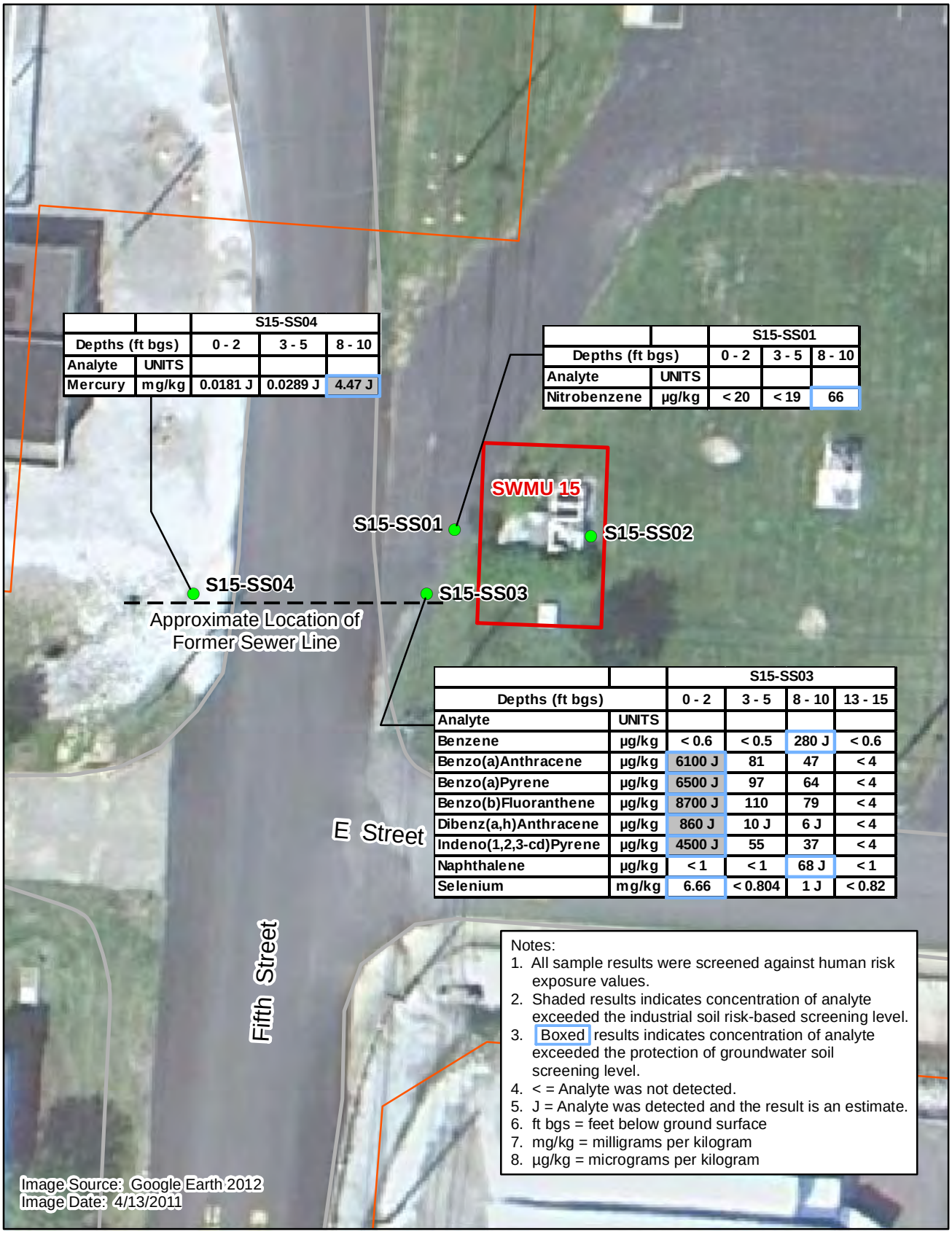
N

0 10 20

Feet

FIGURE 5-3
SWMU 12
Soil Sample Locations
Dow Hanging Rock Phase 1 RFI
Ironton, Ohio

CH2MHILL



		S15-SS04		
Depths (ft bgs)		0 - 2	3 - 5	8 - 10
Analyte	UNITS			
Mercury	mg/kg	0.0181 J	0.0289 J	4.47 J

		S15-SS01		
Depths (ft bgs)		0 - 2	3 - 5	8 - 10
Analyte	UNITS			
Nitrobenzene	µg/kg	< 20	< 19	66

		S15-SS03			
Depths (ft bgs)		0 - 2	3 - 5	8 - 10	13 - 15
Analyte	UNITS				
Benzene	µg/kg	< 0.6	< 0.5	280 J	< 0.6
Benzo(a)Anthracene	µg/kg	6100 J	81	47	< 4
Benzo(a)Pyrene	µg/kg	6500 J	97	64	< 4
Benzo(b)Fluoranthene	µg/kg	8700 J	110	79	< 4
Dibenz(a,h)Anthracene	µg/kg	860 J	10 J	6 J	< 4
Indeno(1,2,3-cd)Pyrene	µg/kg	4500 J	55	37	< 4
Naphthalene	µg/kg	< 1	< 1	68 J	< 1
Selenium	mg/kg	6.66	< 0.804	1 J	< 0.82

Notes:
1. All sample results were screened against human risk exposure values.
2. Shaded results indicates concentration of analyte exceeded the industrial soil risk-based screening level.
3. Boxed results indicates concentration of analyte exceeded the protection of groundwater soil screening level.
4. < = Analyte was not detected.
5. J = Analyte was detected and the result is an estimate.
6. ft bgs = feet below ground surface
7. mg/kg = milligrams per kilogram
8. µg/kg = micrograms per kilogram

LEGEND

- SWMU
- Former Sewer
- Fence
- Edge of Road
- Soil Sample Location

N

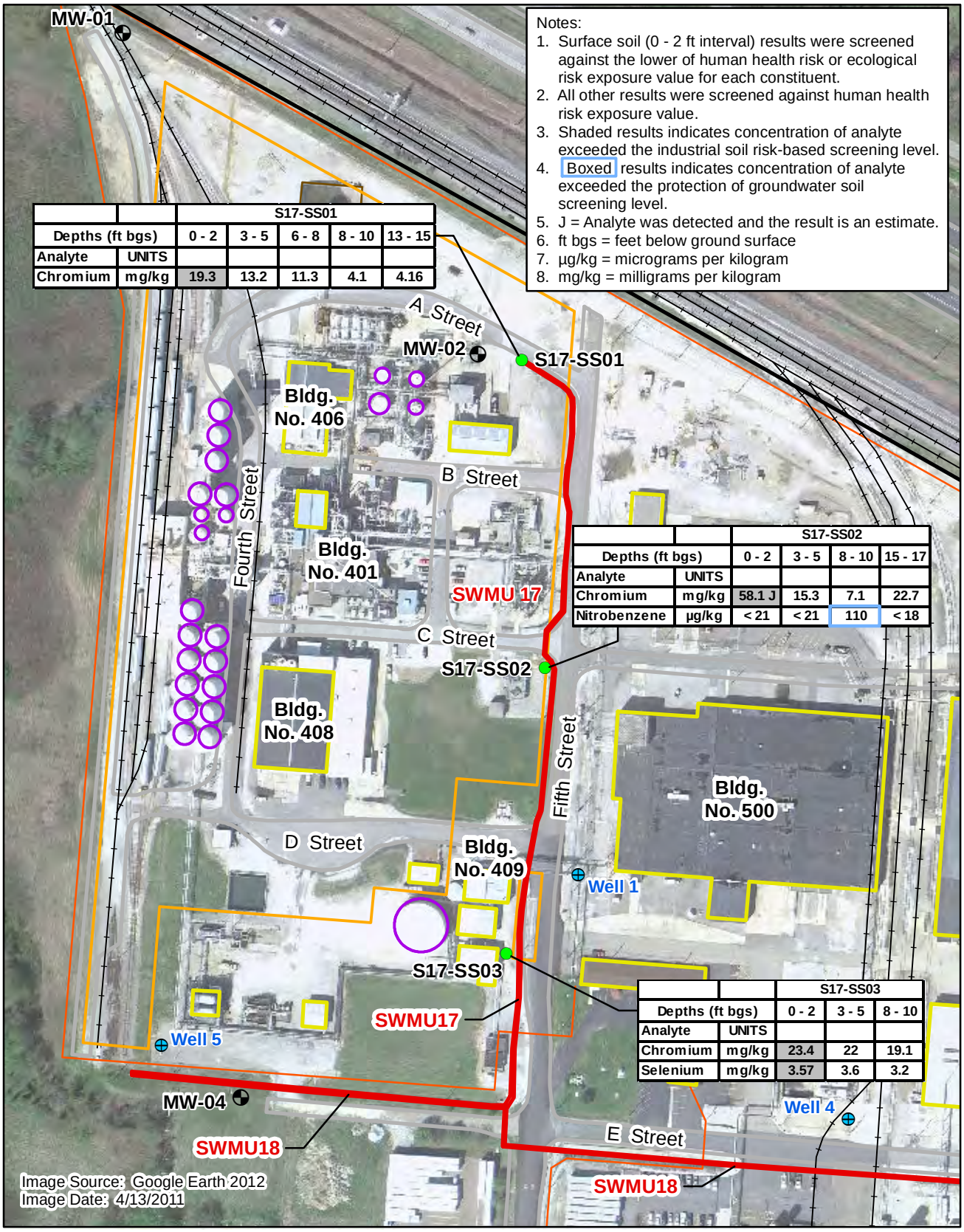
0 15 30

Feet

FIGURE 5-4
SWMU 15
Soil Exceedances

Dow Hanging Rock Phase 1 RFI
Ironton, Ohio

CH2MHILL



LEGEND

- SWMU
- Building
- Approximate Site Boundary
- Property Owned or Leased by Others
- Tank
- Railroad
- Fence
- Edge of Road
- Monitoring Well
- Soil Sample Location
- Approximate Water Well Location

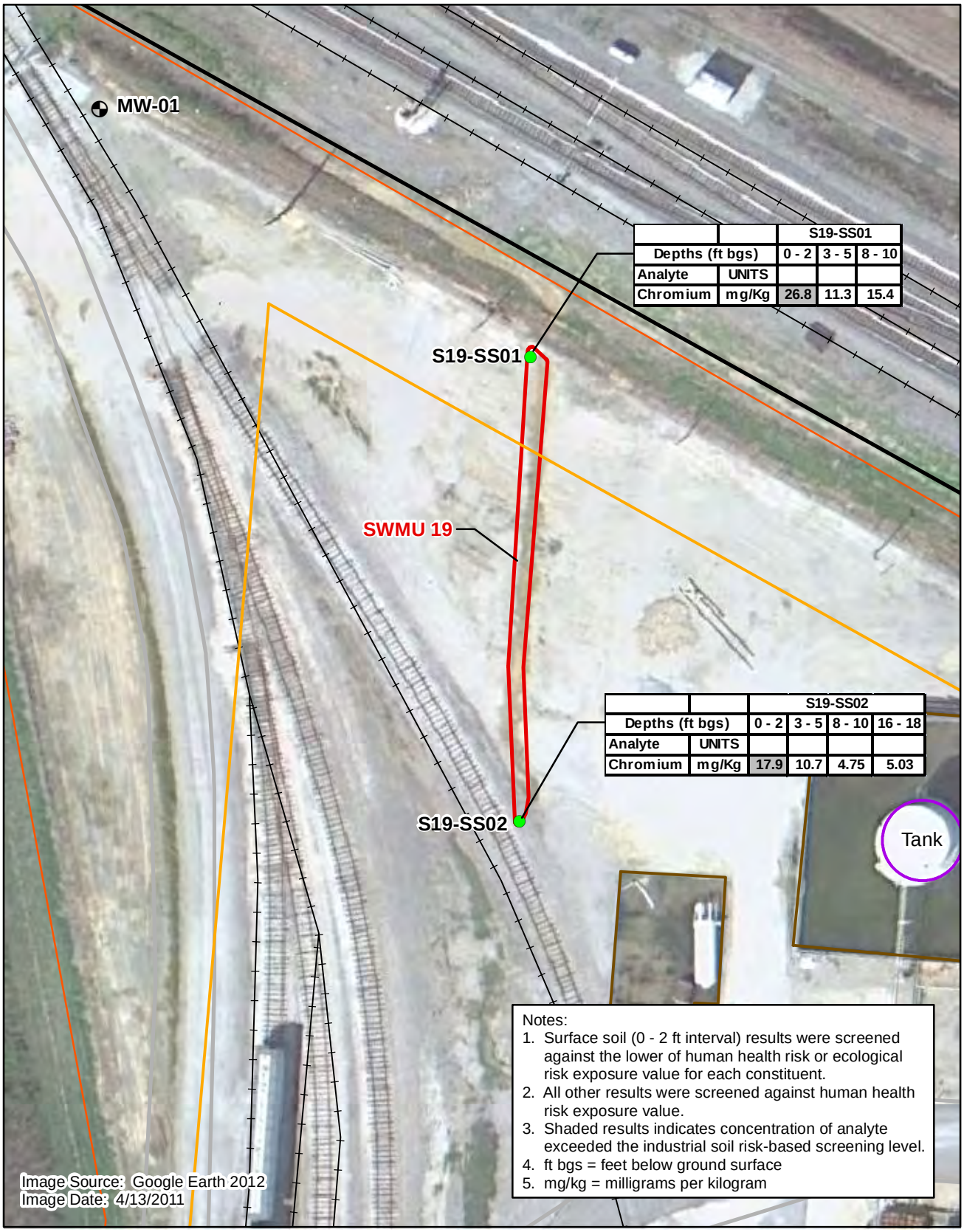
N

0 50 100 200
Feet

FIGURE 5-5
SWMU 17
Soil Exceedances

Dow Hanging Rock Phase 1 RFI
Ironton, Ohio

CH2MHILL



		S19-SS01		
Depths (ft bgs)		0 - 2	3 - 5	8 - 10
Analyte	UNITS			
Chromium	mg/Kg	26.8	11.3	15.4

		S19-SS02			
Depths (ft bgs)		0 - 2	3 - 5	8 - 10	16 - 18
Analyte	UNITS				
Chromium	mg/Kg	17.9	10.7	4.75	5.03

Notes:
1. Surface soil (0 - 2 ft interval) results were screened against the lower of human health risk or ecological risk exposure value for each constituent.
2. All other results were screened against human health risk exposure value.
3. Shaded results indicates concentration of analyte exceeded the industrial soil risk-based screening level.
4. ft bgs = feet below ground surface
5. mg/kg = milligrams per kilogram

LEGEND

- Approximate Site Boundary
- Property Owned or Leased by Others
- SWMU
- Miscellaneous Structure
- Tank
- Railroad
- Fence
- Edge of Road
- Monitoring Well
- Soil Sample Location

N

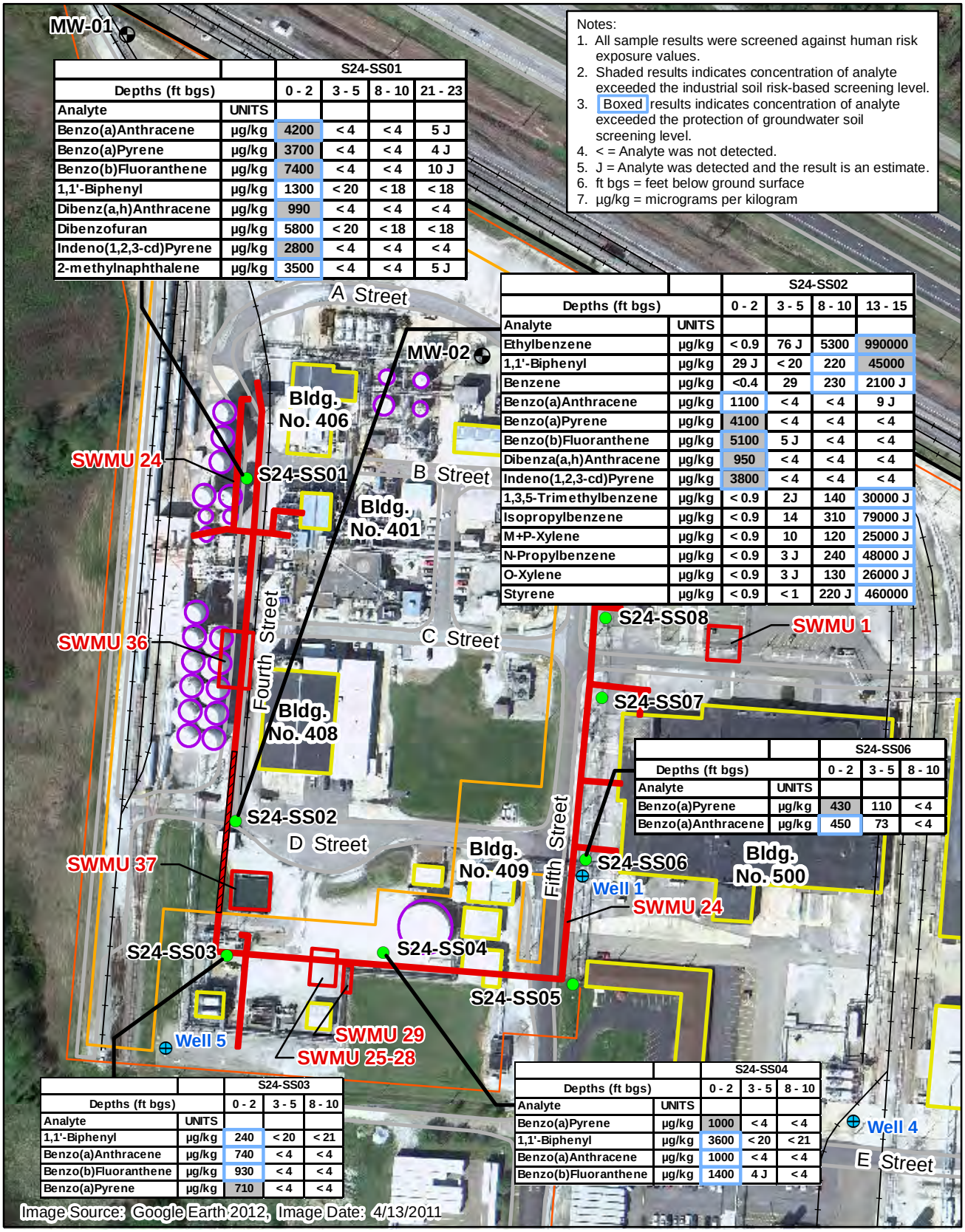
0 25 50
Feet

FIGURE 5-6
SWMU 19
Soil Exceedances

Dow Hanging Rock Phase 1 RFI
Ironton, Ohio

CH2MHILL

RDD \\BALDUR\PROJ\DOW_HANGING_ROCK_404798\MAPFILES\RFI_REPORT\FIG5-6_SWMU_19_SOIL_EXCEED_RFI.MXD ECLARK1 4/3/2012 11:06:26 AM



Notes:
1. All sample results were screened against human risk exposure values.
2. Shaded results indicates concentration of analyte exceeded the industrial soil risk-based screening level.
3. Boxed results indicates concentration of analyte exceeded the protection of groundwater soil screening level.
4. < = Analyte was not detected.
5. J = Analyte was detected and the result is an estimate.
6. ft bgs = feet below ground surface
7. µg/kg = micrograms per kilogram

		S24-SS01			
Depths (ft bgs)		0 - 2	3 - 5	8 - 10	21 - 23
Analyte	UNITS				
Benzo(a)Anthracene	µg/kg	4200	< 4	< 4	5 J
Benzo(a)Pyrene	µg/kg	3700	< 4	< 4	4 J
Benzo(b)Fluoranthene	µg/kg	7400	< 4	< 4	10 J
1,1'-Biphenyl	µg/kg	1300	< 20	< 18	< 18
Dibenz(a,h)Anthracene	µg/kg	990	< 4	< 4	< 4
Dibenzofuran	µg/kg	5800	< 20	< 18	< 18
Indeno(1,2,3-cd)Pyrene	µg/kg	2800	< 4	< 4	< 4
2-methylnaphthalene	µg/kg	3500	< 4	< 4	5 J

		S24-SS02			
Depths (ft bgs)		0 - 2	3 - 5	8 - 10	13 - 15
Analyte	UNITS				
Ethylbenzene	µg/kg	< 0.9	76 J	5300	990000
1,1'-Biphenyl	µg/kg	29 J	< 20	220	45000
Benzene	µg/kg	<0.4	29	230	2100 J
Benzo(a)Anthracene	µg/kg	1100	< 4	< 4	9 J
Benzo(a)Pyrene	µg/kg	4100	< 4	< 4	< 4
Benzo(b)Fluoranthene	µg/kg	5100	5 J	< 4	< 4
Dibenza(a,h)Anthracene	µg/kg	950	< 4	< 4	< 4
Indeno(1,2,3-cd)Pyrene	µg/kg	3800	< 4	< 4	< 4
1,3,5-Trimethylbenzene	µg/kg	< 0.9	2J	140	30000 J
Isopropylbenzene	µg/kg	< 0.9	14	310	79000 J
M+P-Xylene	µg/kg	< 0.9	10	120	25000 J
N-Propylbenzene	µg/kg	< 0.9	3 J	240	48000 J
O-Xylene	µg/kg	< 0.9	3 J	130	26000 J
Styrene	µg/kg	< 0.9	< 1	220 J	460000

		S24-SS06		
Depths (ft bgs)		0 - 2	3 - 5	8 - 10
Analyte	UNITS			
Benzo(a)Pyrene	µg/kg	430	110	< 4
Benzo(a)Anthracene	µg/kg	450	73	< 4

		S24-SS03		
Depths (ft bgs)		0 - 2	3 - 5	8 - 10
Analyte	UNITS			
1,1'-Biphenyl	µg/kg	240	< 20	< 21
Benzo(a)Anthracene	µg/kg	740	< 4	< 4
Benzo(b)Fluoranthene	µg/kg	930	< 4	< 4
Benzo(a)Pyrene	µg/kg	710	< 4	< 4

		S24-SS04		
Depths (ft bgs)		0 - 2	3 - 5	8 - 10
Analyte	UNITS			
Benzo(a)Pyrene	µg/kg	1000	< 4	< 4
1,1'-Biphenyl	µg/kg	3600	< 20	< 21
Benzo(a)Anthracene	µg/kg	1000	< 4	< 4
Benzo(b)Fluoranthene	µg/kg	1400	4 J	< 4

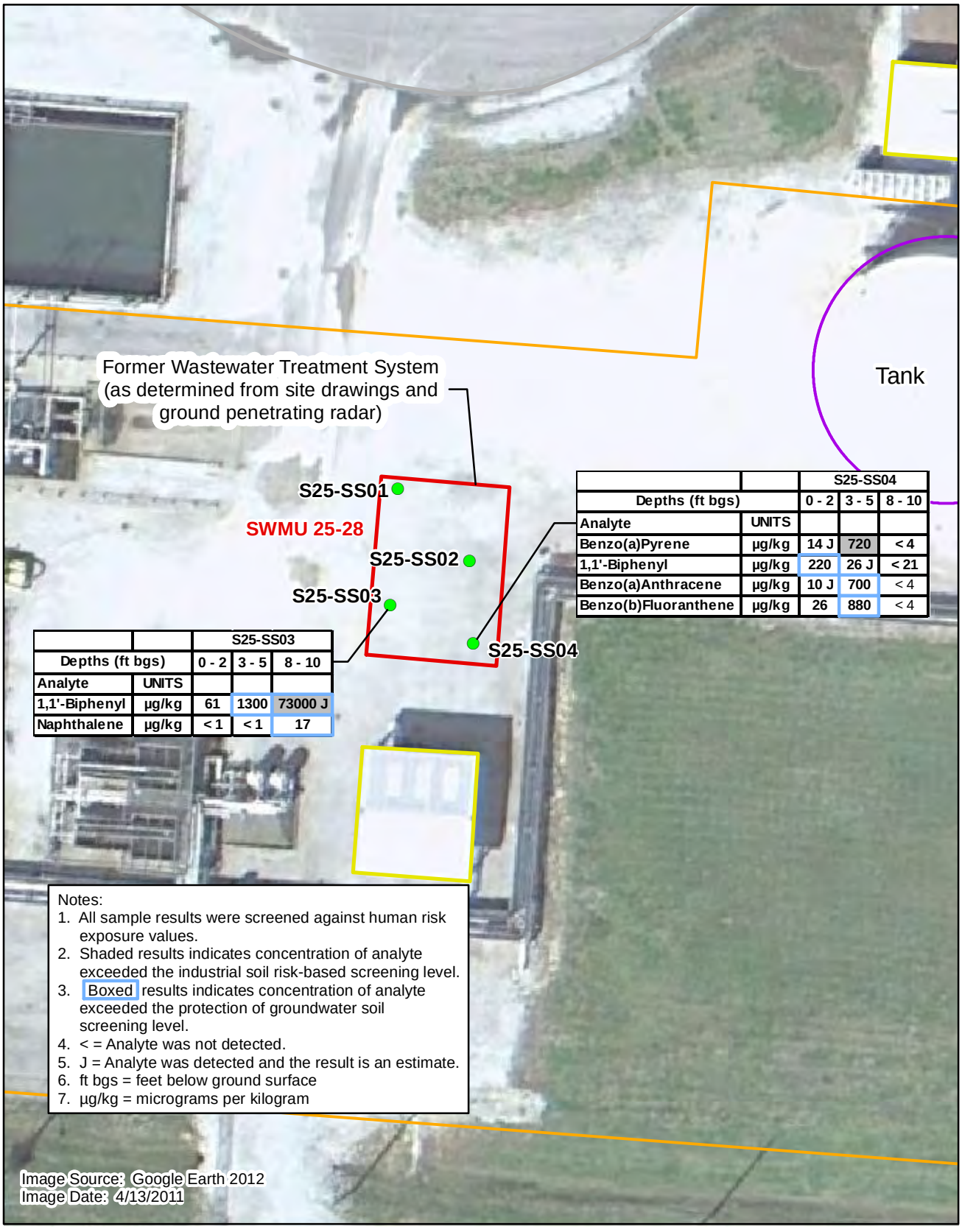
LEGEND
- SWMU
- Property Owned or Leased by Others
- Approximate Site Boundary
- Tank
- Building
- Approximate Location of Process Sewer Line Voluntary Closure Excavation Area
- Railroad
- Fence
- Edge of Road
- Approximate Water Well Location
- Monitoring Well
- Soil Sample Location

0 50 100 200
Feet

N

FIGURE 5-7
SWMU 24
Soil Exceedances
Dow Hanging Rock Phase 1 RFI
Ironton, Ohio

CH2MHILL



		S25-SS04		
Depths (ft bgs)		0 - 2	3 - 5	8 - 10
Analyte	UNITS			
Benzo(a)Pyrene	µg/kg	14 J	720	< 4
1,1'-Biphenyl	µg/kg	220	26 J	< 21
Benzo(a)Anthracene	µg/kg	10 J	700	< 4
Benzo(b)Fluoranthene	µg/kg	26	880	< 4

		S25-SS03		
Depths (ft bgs)		0 - 2	3 - 5	8 - 10
Analyte	UNITS			
1,1'-Biphenyl	µg/kg	61	1300	73000 J
Naphthalene	µg/kg	< 1	< 1	17

LEGEND

- SWMU
- Property Owned or Leased by Others
- Building
- Soil Sample Location

N

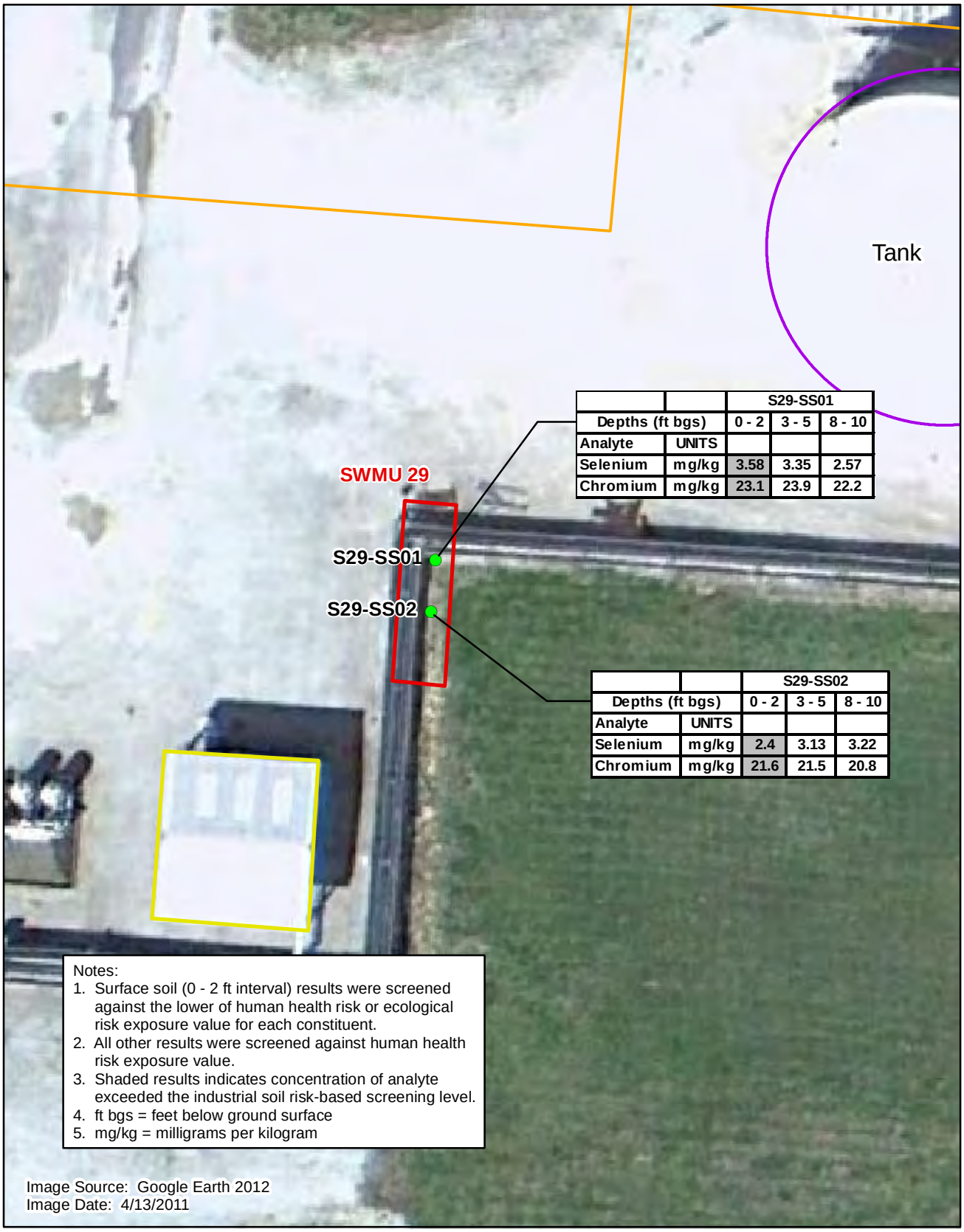
0 20 40
Feet

FIGURE 5-8
SWMU 25-28
Soil Exceedances

Dow Hanging Rock Phase 1 RFI
Ironton, Ohio

CH2MHILL

RDD \\BALDUR\PROJ\DOW_HANGING_ROCK_404798\MAPFILES\RFI_REPORT\FIG5-8_SWMU_25-28_SOIL_EXCEED_RFI.MXD ECLARK1 4/3/2012 10:54:01 AM



		S29-SS01		
Depths (ft bgs)		0 - 2	3 - 5	8 - 10
Analyte	UNITS			
Selenium	mg/kg	3.58	3.35	2.57
Chromium	mg/kg	23.1	23.9	22.2

		S29-SS02		
Depths (ft bgs)		0 - 2	3 - 5	8 - 10
Analyte	UNITS			
Selenium	mg/kg	2.4	3.13	3.22
Chromium	mg/kg	21.6	21.5	20.8

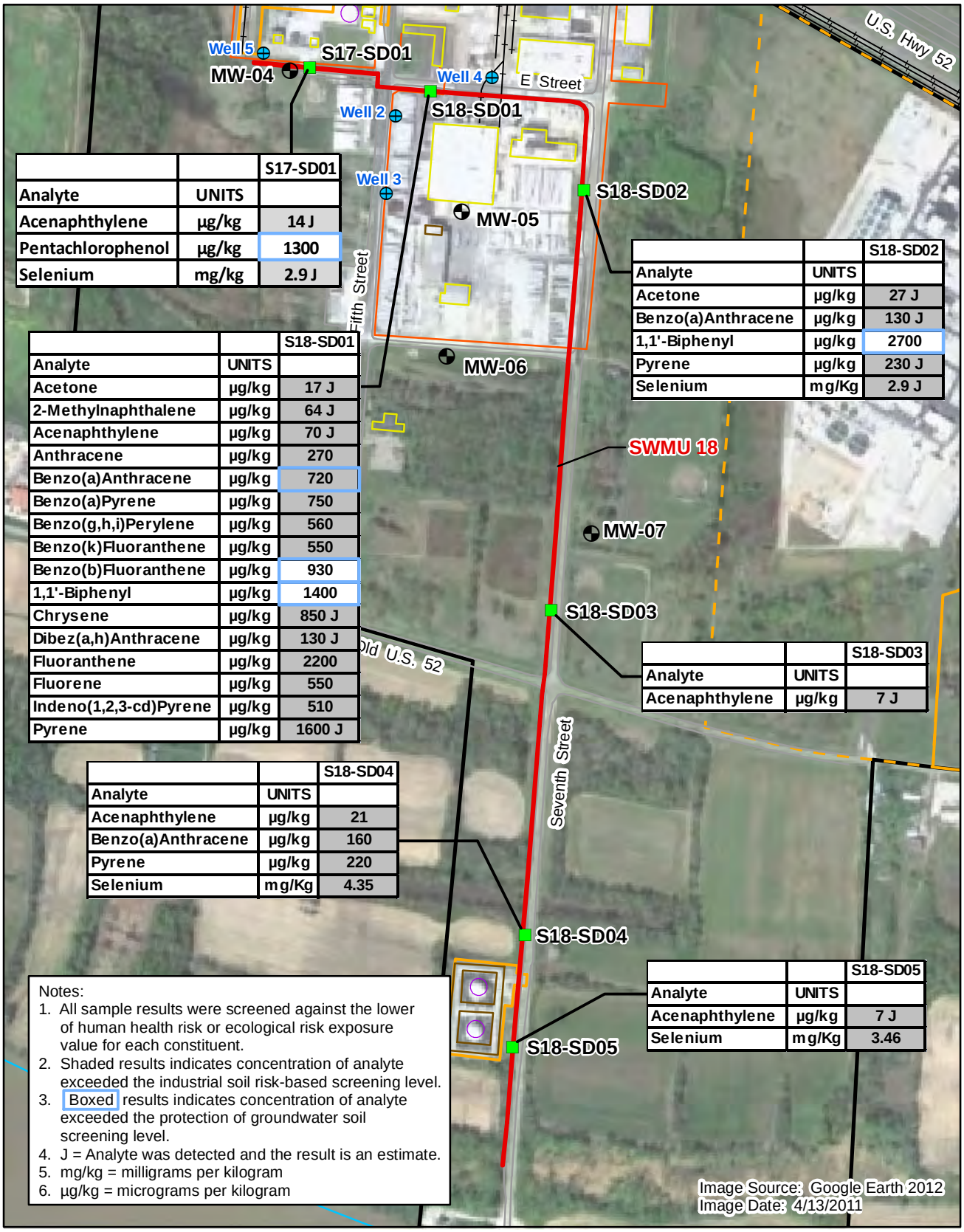
FIGURE 5-9
SWMU 29
Soil Exceedances
Dow Hanging Rock Phase 1 RFI
Ironton, Ohio

CH2MHILL

RDD \\BALDUR\PROJ\DOW_HANGING_ROCK_404798\MAPFILES\RFI_REPORT\FIG5-9_SWMU_29_SOIL_EXCEED_RFI.MXD ECLARK1 4/3/2012 10:55:18 AM

FIGURE 5-10
AOC D
Soil Sample Exceedances
Dow Hanging Rock Phase 1 RFI
Ironton, Ohio

CH2MHILL



		S17-SD01
Analyte	UNITS	
Acenaphthylene	µg/kg	14 J
Pentachlorophenol	µg/kg	1300
Selenium	mg/kg	2.9 J

		S18-SD02
Analyte	UNITS	
Acetone	µg/kg	27 J
Benzo(a)Anthracene	µg/kg	130 J
1,1'-Biphenyl	µg/kg	2700
Pyrene	µg/kg	230 J
Selenium	mg/Kg	2.9 J

		S18-SD01
Analyte	UNITS	
Acetone	µg/kg	17 J
2-Methylnaphthalene	µg/kg	64 J
Acenaphthylene	µg/kg	70 J
Anthracene	µg/kg	270
Benzo(a)Anthracene	µg/kg	720
Benzo(a)Pyrene	µg/kg	750
Benzo(g,h,i)Perylene	µg/kg	560
Benzo(k)Fluoranthene	µg/kg	550
Benzo(b)Fluoranthene	µg/kg	930
1,1'-Biphenyl	µg/kg	1400
Chrysene	µg/kg	850 J
Dibez(a,h)Anthracene	µg/kg	130 J
Fluoranthene	µg/kg	2200
Fluorene	µg/kg	550
Indeno(1,2,3-cd)Pyrene	µg/kg	510
Pyrene	µg/kg	1600 J

		S18-SD03
Analyte	UNITS	
Acenaphthylene	µg/kg	7 J

		S18-SD04
Analyte	UNITS	
Acenaphthylene	µg/kg	21
Benzo(a)Anthracene	µg/kg	160
Pyrene	µg/kg	220
Selenium	mg/Kg	4.35

		S18-SD05
Analyte	UNITS	
Acenaphthylene	µg/kg	7 J
Selenium	mg/Kg	3.46

Notes:
1. All sample results were screened against the lower of human health risk or ecological risk exposure value for each constituent.
2. Shaded results indicates concentration of analyte exceeded the industrial soil risk-based screening level.
3. Boxed results indicates concentration of analyte exceeded the protection of groundwater soil screening level.
4. J = Analyte was detected and the result is an estimate.
5. mg/kg = milligrams per kilogram
6. µg/kg = micrograms per kilogram

LEGEND

- Approximate Site Boundary
- Property Owned or Leased by Others (Dashed = Assumed Boundary)
- SWMU
- Building
- Tank
- Miscellaneous Structure
- Railroad
- Fence
- Edge of Road
- Sediment Sample Location
- Monitoring Well
- Approximate Water Well Location

N

0 300 600
Feet

FIGURE 5-11
SWMU 17 and 18
Sediment Sample Exceedances

Dow Hanging Rock Phase 1 RFI
Ironton, Ohio

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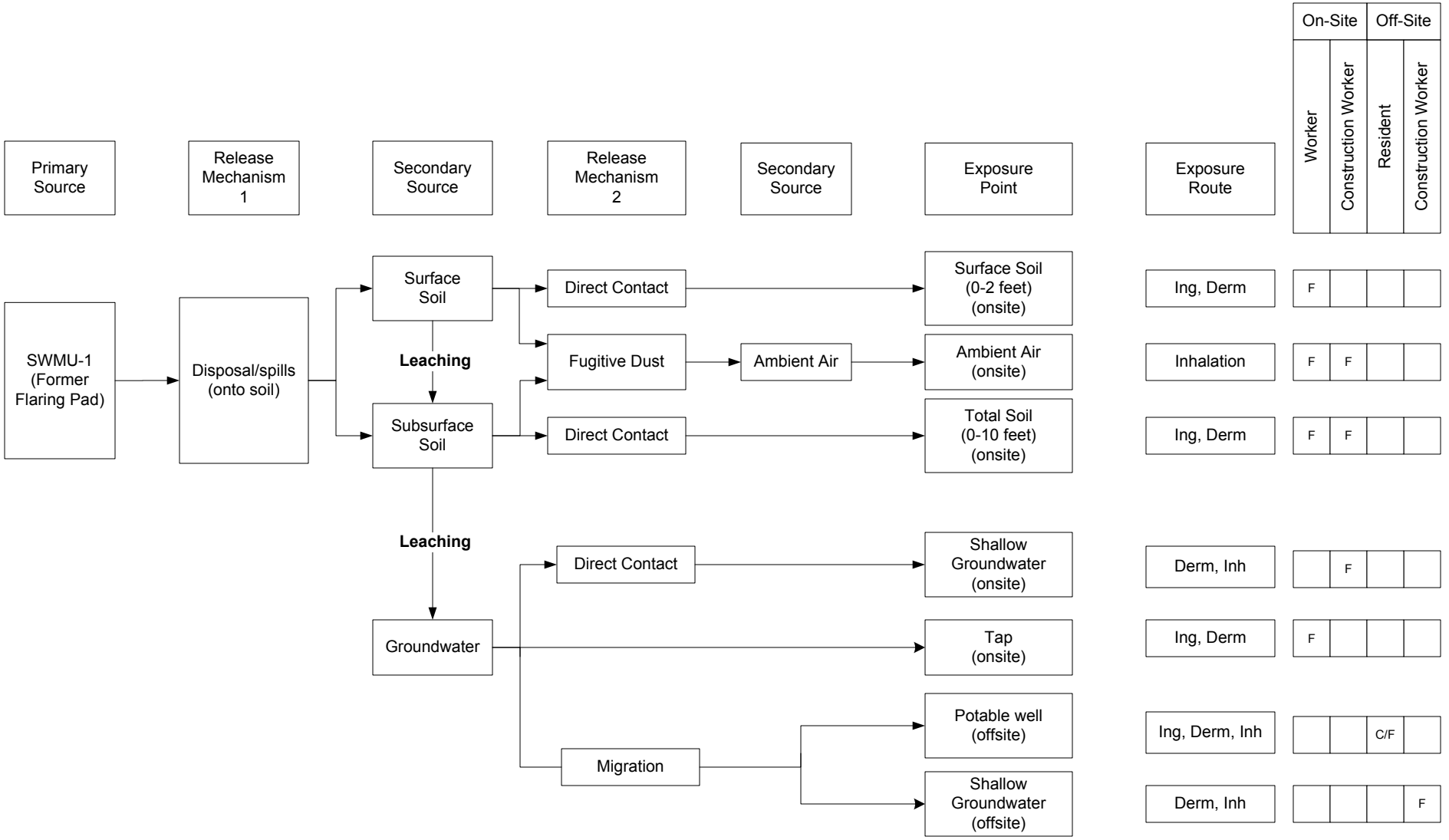
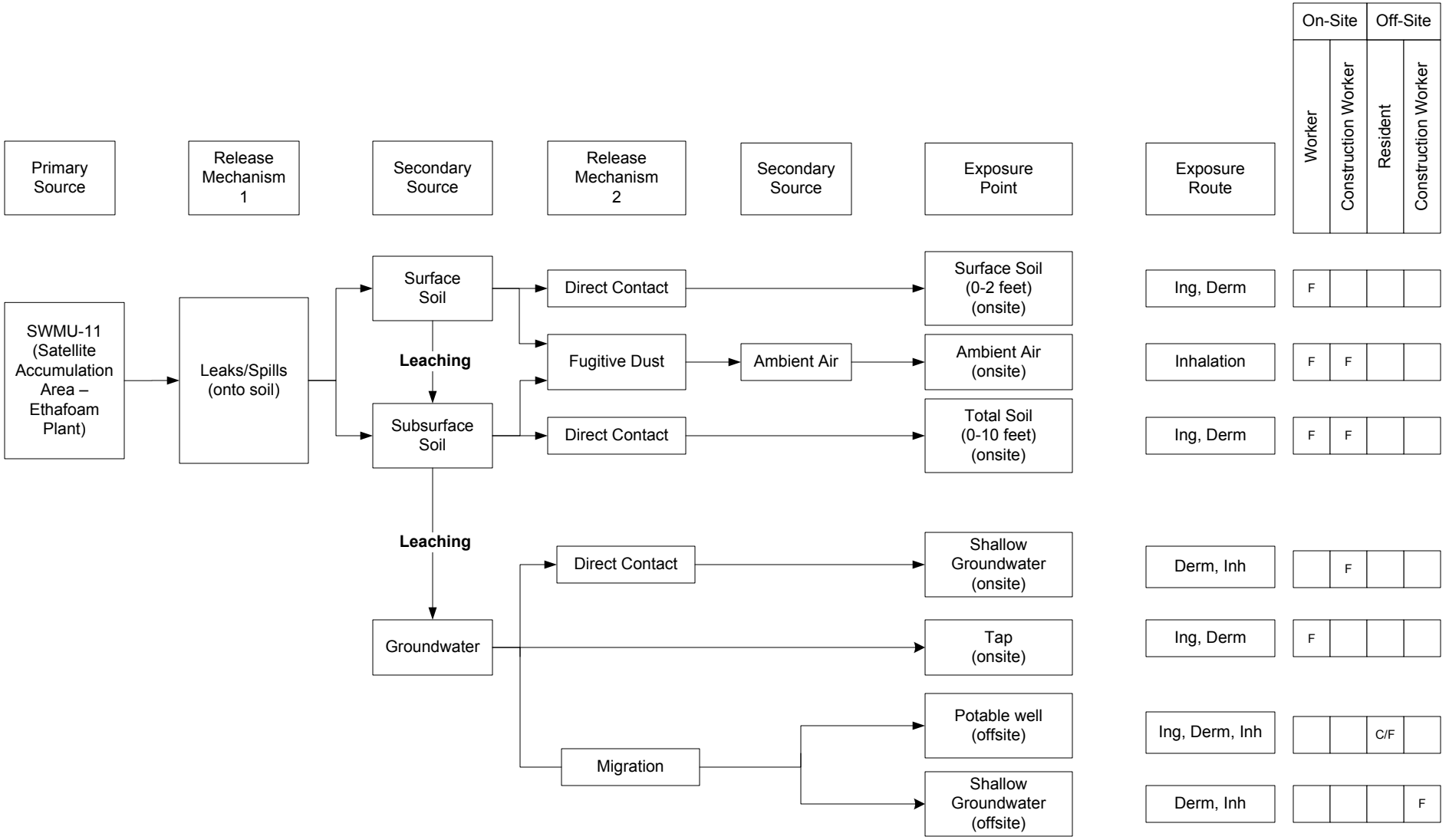


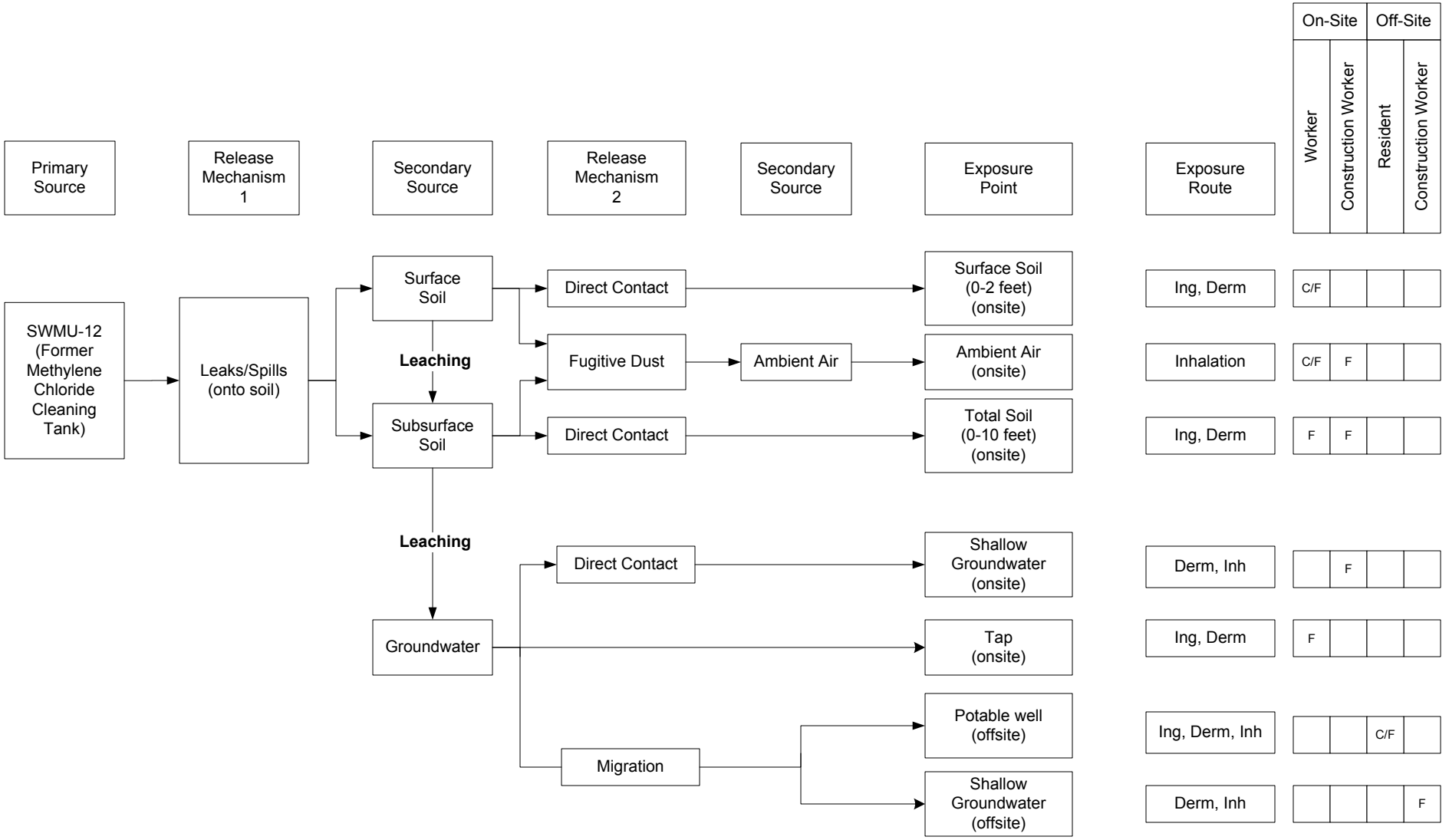
FIGURE 6-1
SWMU 1 Preliminary Conceptual Exposure Model
Dow Hanging Rock Phase 1 RFI
Ironton, Ohio



Potentially Complete Pathway
C/F = Current/Future, F = Future

Ing- Ingestion, Derm- Dermal, Inh- Inhalation

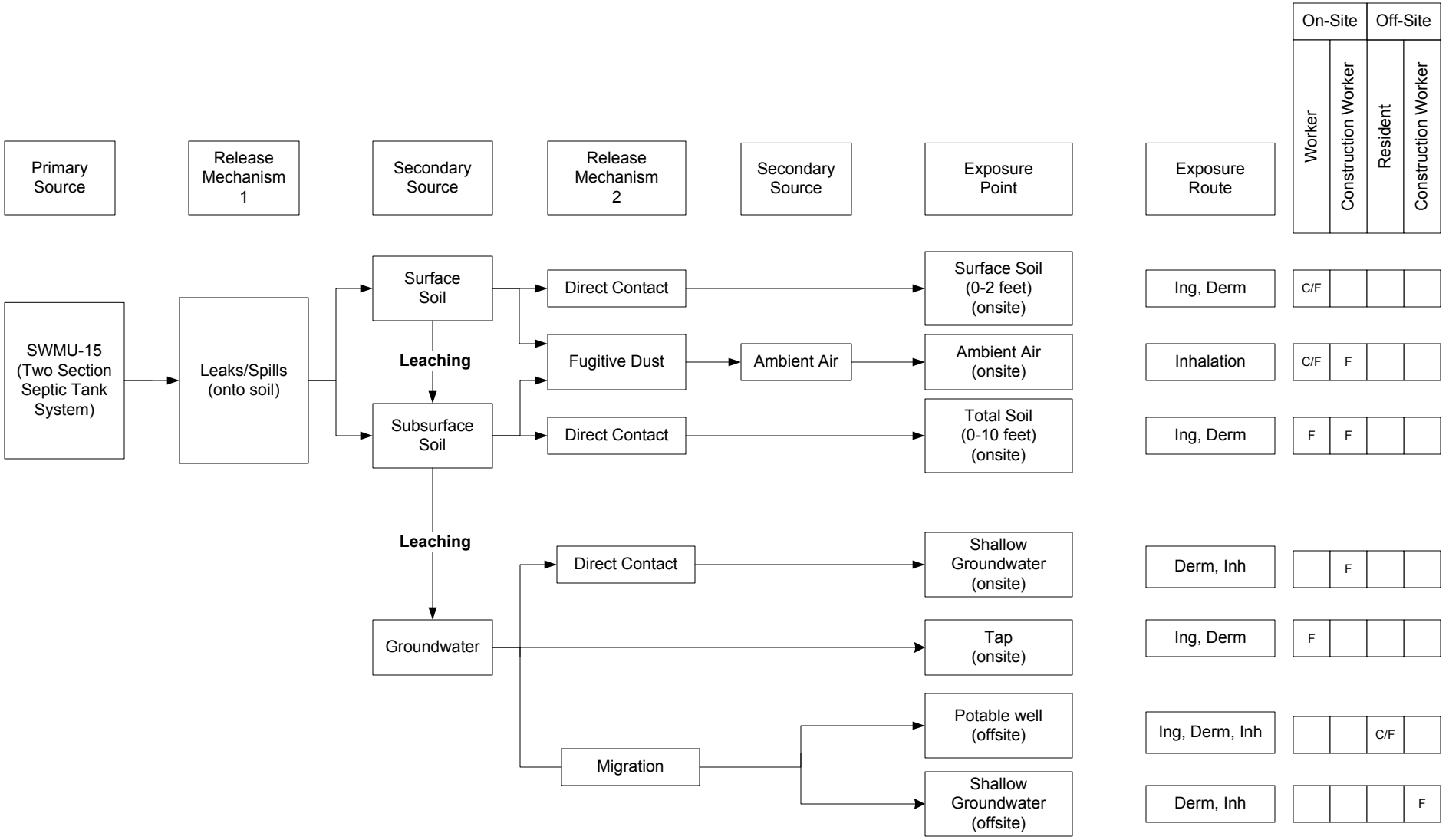
FIGURE 6-2
SWMU 11 Preliminary Conceptual Exposure Model
Dow Hanging Rock Phase 1 RFI
Ironton, Ohio



Potentially Complete Pathway
C/F = Current/Future, F = Future

FIGURE 6-3
SWMU 12 Preliminary Conceptual Exposure Model
Dow Hanging Rock Phase 1 RFI
Ironton, Ohio

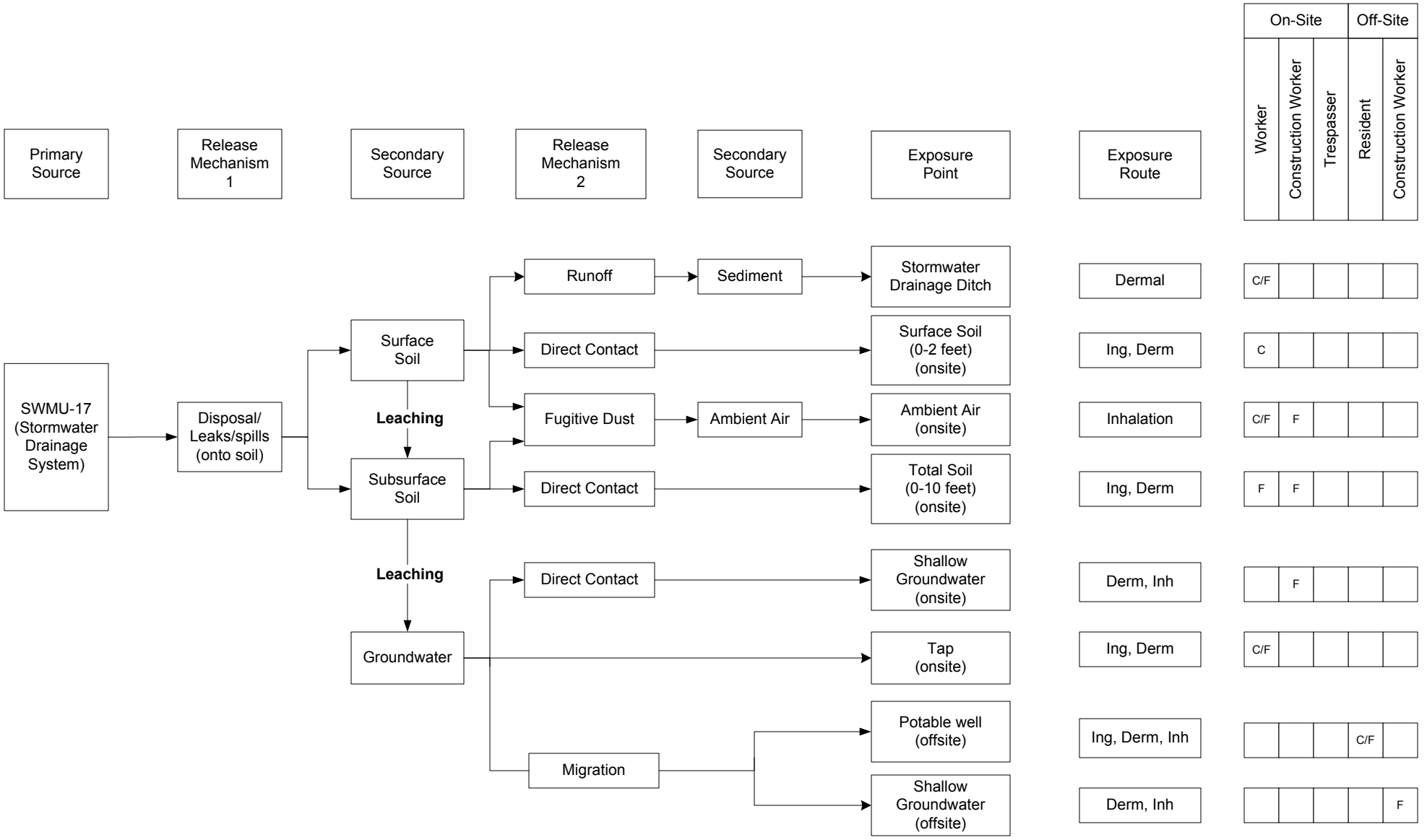
Ing- Ingestion, Derm- Dermal, Inh- Inhalation



Potentially Complete Pathway
C/F = Current/Future, F = Future

Ing- Ingestion, Derm- Dermal, Inh- Inhalation

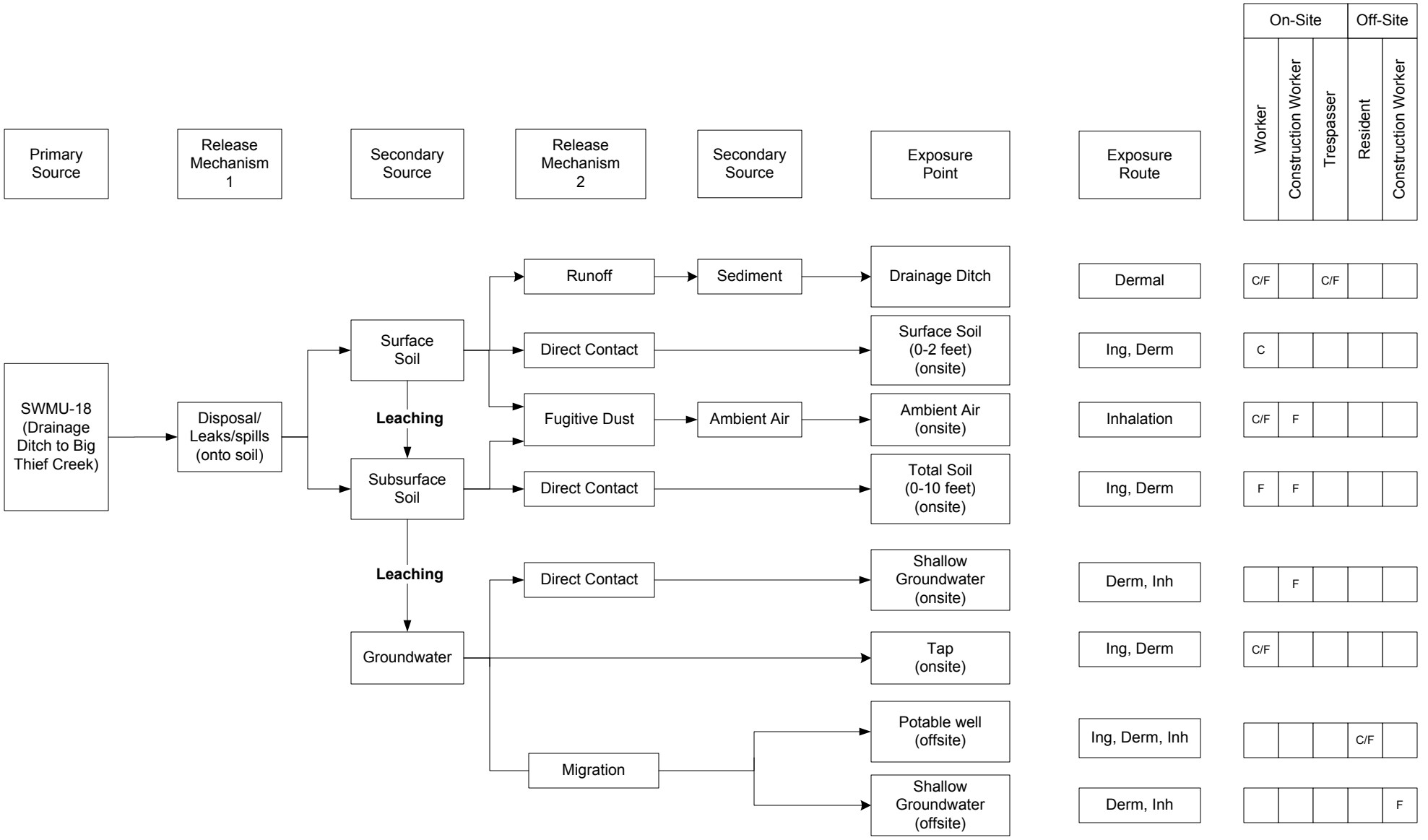
FIGURE 6-4
SWMU 15 Preliminary Conceptual Exposure Model
Dow Hanging Rock Phase 1 RFI
Ironton, Ohio



Potentially Complete Pathway
C/F = Current/Future, F = Future

Ing- Ingestion, Derm- Dermal, Inh- Inhalation

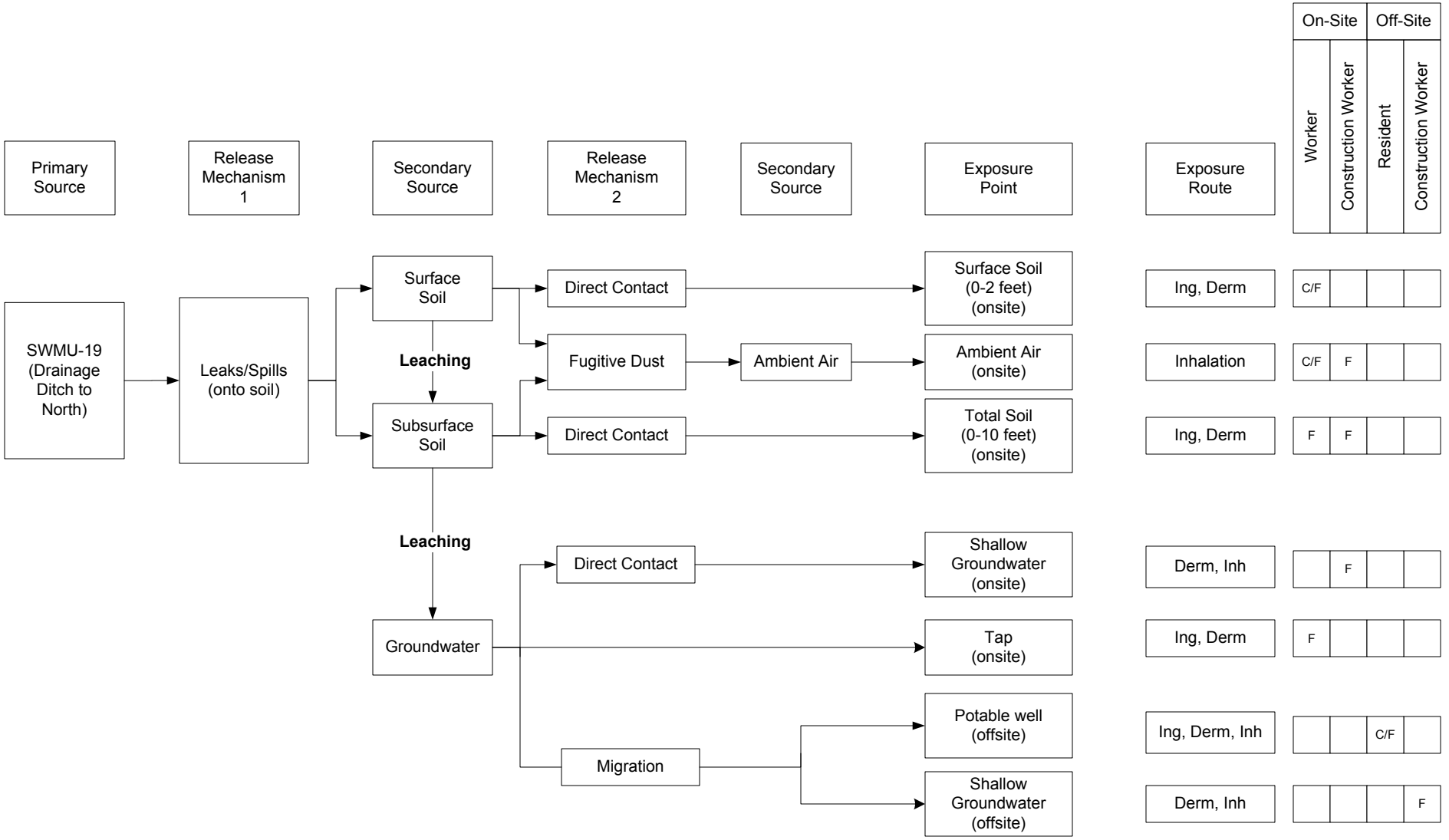
FIGURE 6-5
SWMU 17 Preliminary Conceptual Exposure Model
Dow Hanging Rock Phase 1 RFI
Ironton, Ohio



Potentially Complete Pathway
C/F = Current/Future, F = Future

Ing- Ingestion, Derm- Dermal, Inh- Inhalation

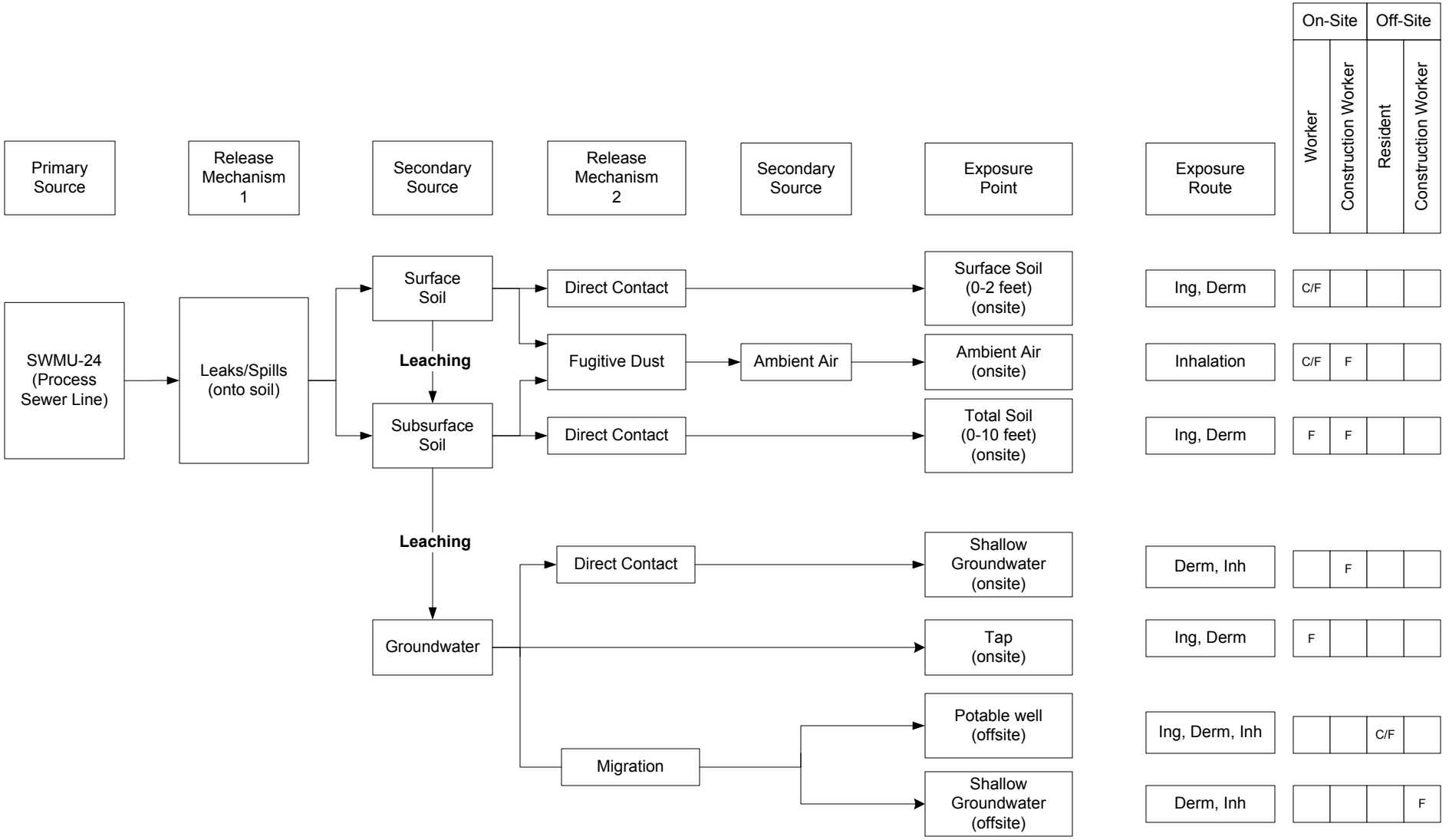
FIGURE 6-6
SWMU 18 Preliminary Conceptual Exposure Model
Dow Hanging Rock Phase 1 RFI
Ironton, Ohio



Potentially Complete Pathway
C/F = Current/Future, F = Future

Ing- Ingestion, Derm- Dermal, Inh- Inhalation

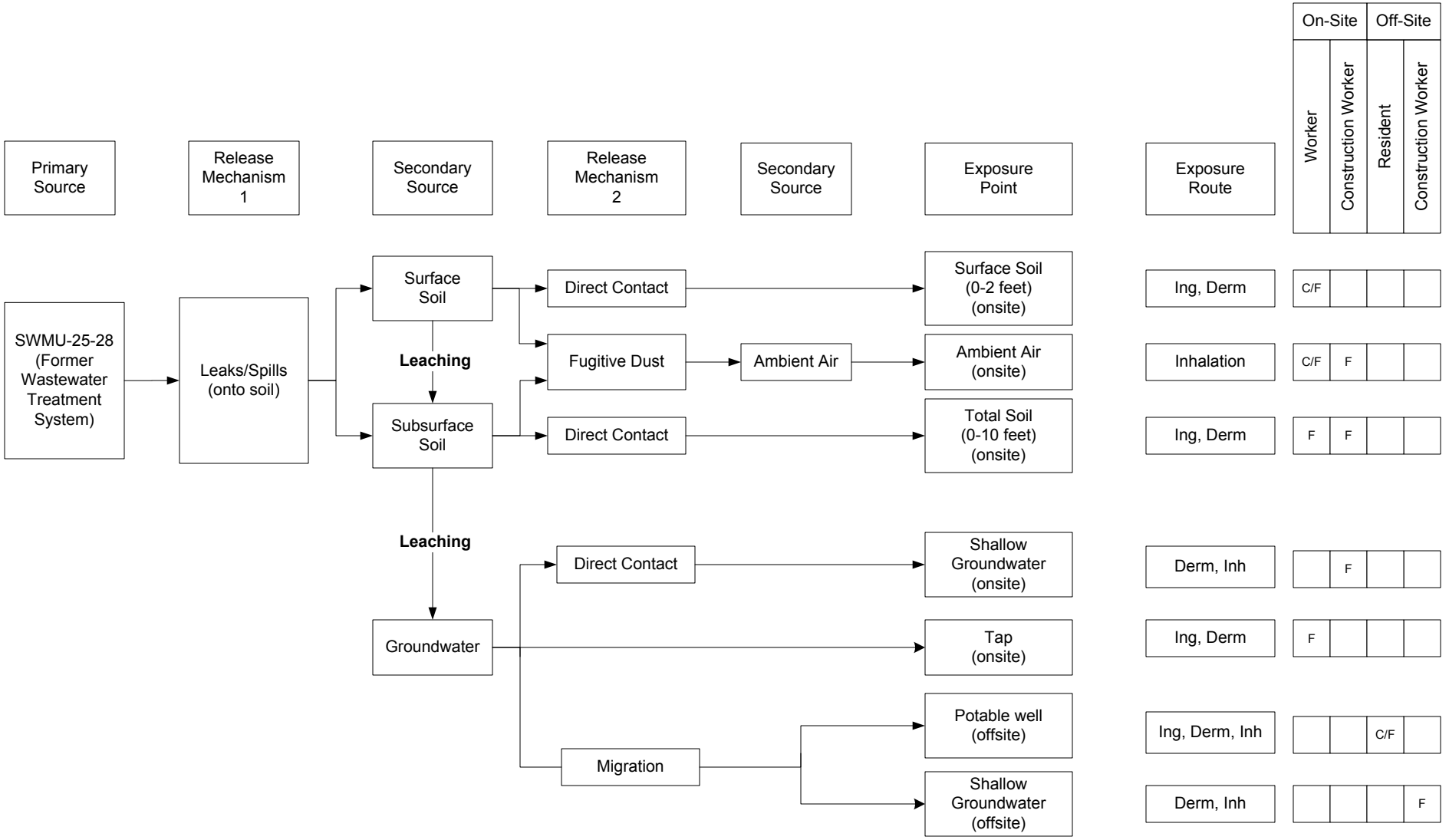
FIGURE 6-7
SWMU 19 Preliminary Conceptual Exposure Model
Dow Hanging Rock Phase 1 RFI
Ironton, Ohio



Potentially Complete Pathway
C/F = Current/Future, F = Future

Ing- Ingestion, Derm- Dermal, Inh- Inhalation

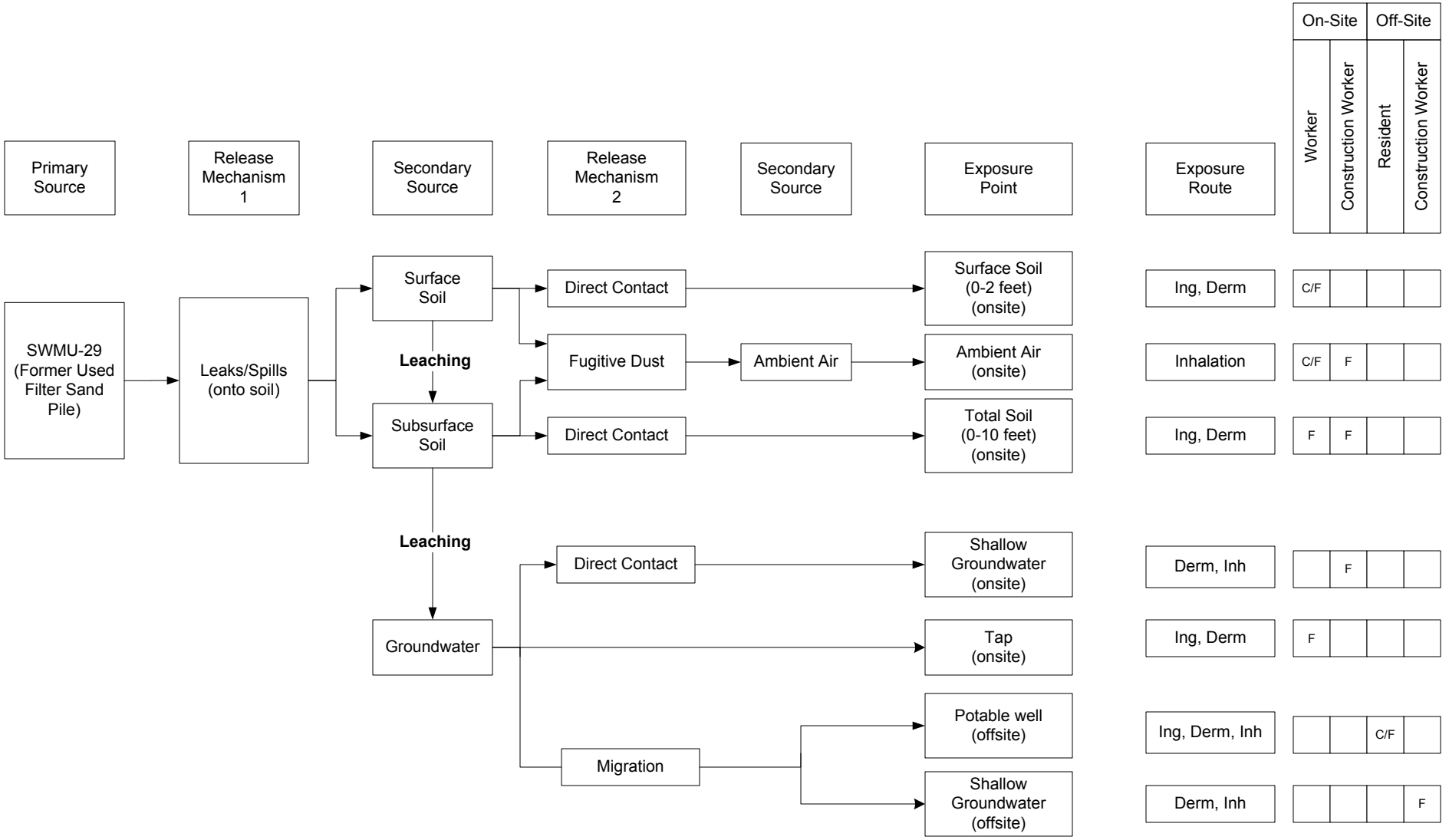
FIGURE 6-8
SWMU 24 Preliminary Conceptual Exposure Model
Dow Hanging Rock Phase 1 RFI
Ironton, Ohio



Potentially Complete Pathway
C/F = Current/Future, F = Future

Ing- Ingestion, Derm- Dermal, Inh- Inhalation

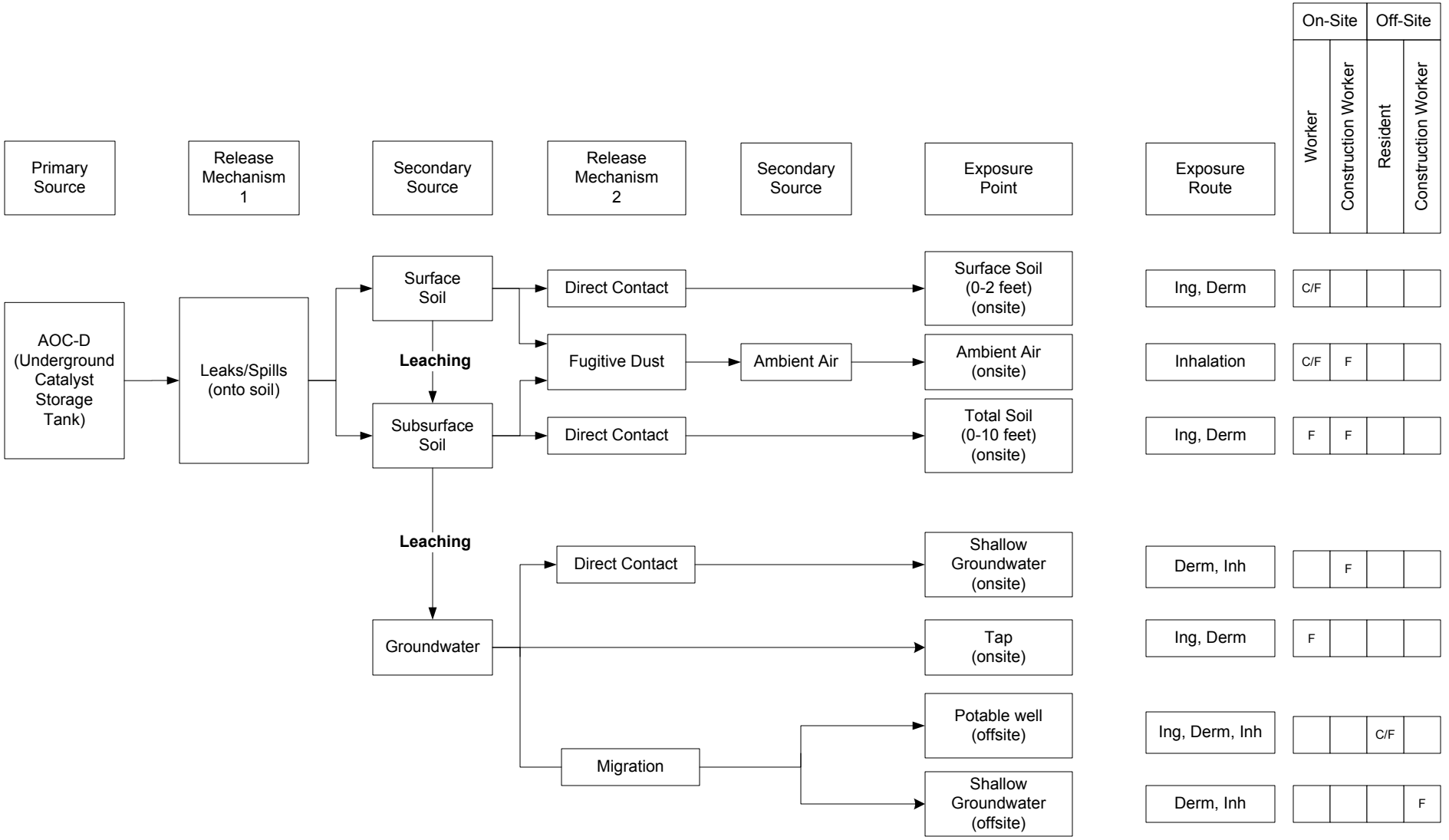
FIGURE 6-9
SWMU 25-28 Preliminary Conceptual Exposure Model
Dow Hanging Rock Phase 1 RFI
Ironton, Ohio



Potentially Complete Pathway
C/F = Current/Future, F = Future

Ing- Ingestion, Derm- Dermal, Inh- Inhalation

FIGURE 6-10
SWMU 29 Preliminary Conceptual Exposure Model
Dow Hanging Rock Phase 1 RFI
Ironton, Ohio



Potentially Complete Pathway
C/F = Current/Future, F = Future

Ing- Ingestion, Derm- Dermal, Inh- Inhalation

FIGURE 6-11
AOC D Preliminary Conceptual Exposure Model
Dow Hanging Rock Phase 1 RFI
Ironton, Ohio

FIGURE 7-1
Ecological Risk Assessment Process
Phase I RFI Investigation Report
Dow Hanging Rock Facility, Ironton, Ohio

Ecological Risk Assessment Process[1]

Step 1: Screening-Level Problem Formulation and Toxicity Evaluation

- Problem formulation
  - Compile and review existing information on the ecological setting;
  - Compile and review available analytical and biological data;
  - Develop preliminary CSM
  - Develop assessment and measurement endpoints for critical exposure pathways.
- Site visit / initial investigation
- Ecological Effects Assessment

Step 2: Screening-Level Exposure Estimate and Risk Calculation*

- Exposure Assessment
- Risk calculation

Steps 3 to 7 are considered to be part of the Baseline Ecological Risk Assessment

Step 3: Problem Formulation*

- Refine Potential Constituents of Concern
- Contaminant fate and transport
- Mechanisms of toxicity
- Ecosystems potentially at risk
- Exposure pathways
- Assessment endpoints
- Refine Conceptual site model
- Risk questions

Step 4: Study Design and Data Quality Objectives Process*

Step 5: Field Sampling Plan Verification*

Step 6: Site Investigation and Data Analysis*

Step 7: Risk Characterization

Risk estimation and characterization

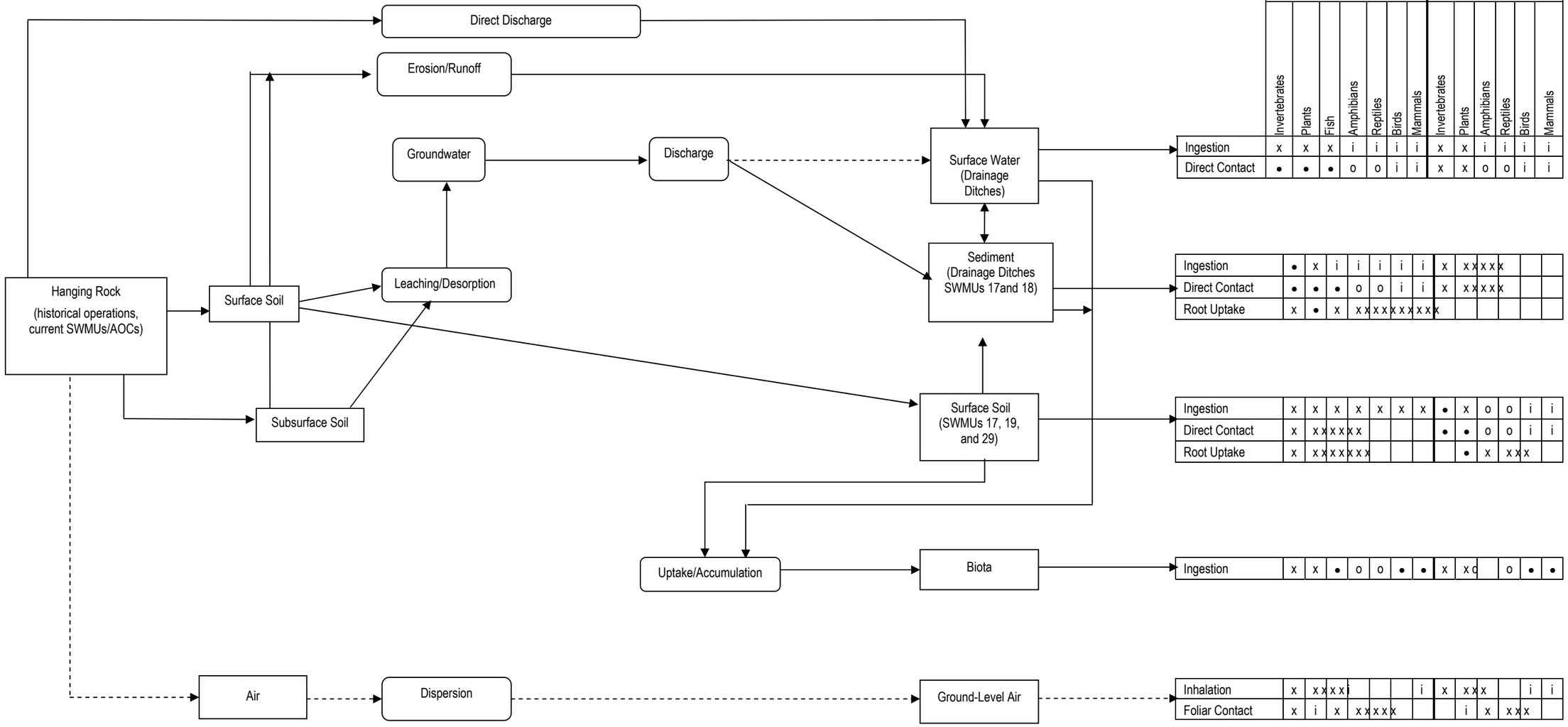
Step 8: Risk Management

Notes:

* These steps are followed by a SMDP, during which it is decided upon appropriate future courses of action, if any.

1 – Adapted from USEPA 1997

Sources | **Transport Pathways** | **Exposure Media** | **Exposure Route** | **Receptors**



Exposure Route	Aquatic							Terrestrial					
	Invertebrates	Plants	Fish	Amphibians	Reptiles	Birds	Mammals	Invertebrates	Plants	Amphibians	Reptiles	Birds	Mammals
Ingestion	x	x	x	i	i	i	i	x	x	i	i	i	i
Direct Contact	•	•	•	o	o	i	i	x	x	o	o	i	i

Exposure Route	Sediment (Drainage Ditches SWMUs 17and 18)												
Ingestion	•	x	i	i	i	i	i	x	x	x	x	x	
Direct Contact	•	•	•	o	o	i	i	x	x	x	x	x	
Root Uptake	x	•	x	x	x	x	x	x	x	x	x	x	

Exposure Route	Surface Soil (SWMUs 17, 19, and 29)												
Ingestion	x	x	x	x	x	x	x	•	x	o	o	i	i
Direct Contact	x	x	x	x	x			•	•	o	o	i	i
Root Uptake	x	x	x	x	x	x			•	x	x	x	

Exposure Route	Biota												
Ingestion	x	x	•	o	o	•	•	x	x	o		o	•	•

Exposure Route	Ground-Level Air												
Inhalation	x	x	x	x	i			i	x	x	x		i	i
Foliar Contact	x	i	x	x	x	x			i	x	x	x		

Primary exposure pathway

Ecologically insignificant exposure pathway

• = Complete and significant pathway - A complete and significant pathway means there is a potential for a contaminant to reach a receptor via the proposed route and there is a high potential that the receptor will receive a significant proportion of the contaminant dose via the proposed route.

○ = Complete and significance unknown – A complete and significant pathway means there is a potential for a contaminant to reach a receptor via the proposed route and that it is unknown if the receptor will receive a significant proportion of the contaminant dose via the proposed route alone. However, the receptor could receive a significant proportion of the contaminant dose when combined with other pathways or other contaminants.

i = Complete and insignificant pathway - A complete and insignificant pathway means there is a potential for a contaminant to reach a receptor via the proposed route and there is a low potential that the receptor will receive a significant proportion of the contaminant dose via the proposed route.

x = Incomplete pathway - An Incomplete pathway means there is no potential for a contaminant to reach a receptor via the proposed route.

FIGURE 7-2
Conceptual Site Model
Phase I RFI Investigation Report
Dow Hanging Rock
Ironton, Ohio

Appendix A
Field Documentation

CH2MHILL

PROJECT NUMBER:	BORING NUMBER:
420671	MW-01 SHEET 1 OF 2

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Boart Longyear

DRILLING EQUIPMENT AND METHOD : Spider Sonic Rig

WATER LEVELS : --- START : 1/14/12 13:15 END : 1/5/12 11:50 LOGGER : O ogbebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
0.0					0-1' - Clay with some silt, (CL), little sand, trace gravel, strong brown, 2.5YR 5/6, dry, non plastic, medium firm		Initial PID (ppm)=0.9 Headspace PID (ppm)=2.1
	1	MC-1			1-5' - No recovery		Initial PID (ppm)=1.2 Headspace PID (ppm)=0.9
5 5.0					5-13.5' - Silt with some fine sand (ML), little clay, strong brown, 7.5YR 5/6, moist, low plastic, firm		Initial PID (ppm)=1.6 Headspace PID (ppm)=1.1
	5	MC-2					Initial PID (ppm)=1.4 Headspace PID (ppm)=1.1
10 10.0							Initial PID (ppm)=68.1 Headspace PID (ppm)=5.3
					13.5-14.5' - Silt with some gravel and sand (ML), strong brown, 7.5YR 5/6, moist, non plastic, hard		Initial PID (ppm)=42.4 Headspace PID (ppm)=4.8
15	10	MC-3			14.5-22' - Gravely sand (SW), few silt, brown, 7.5YR 4/1, moist, loose, gravel is subangular to rounded		Initial PID (ppm)=46.4 Headspace PID (ppm)=4.4
							Initial PID (ppm)=46.8 Headspace PID (ppm)=46.8
20 20.0							Initial PID (ppm)=20.1 Headspace PID (ppm)=26.1
					22-31.5' - Sand (SW), coarse grained, trace gravel, trace silt, dark brown 7.5YR 3/2, wet, loose, coarse sand, subangular to rounded to flatish		
25	10	MC-4					Initial PID (ppm)=16.8 Headspace PID (ppm)=24.3
							Initial PID (ppm)=16.8 Headspace PID (ppm)=24.3
30 30.0							Initial PID (ppm)=18.6 Headspace PID (ppm)=20.4
					31.5-32.5' - Gravelly sand (SW), trace silt, brown 2.5YR 4/3, wet, loose		
					32.5-40' - No Recovery		
35	2.5	MC-5					
40 40.0							
					40-67' - Gravelly sand (SW), trace silt, brown, 2.5YR 4/3, wet, loose		Initial PID (ppm)=1.8 Headspace PID (ppm)=3.6
45							Initial PID (ppm)=1.4 Headspace PID (ppm)=15.3

PROJECT NUMBER:	BORING NUMBER:
420671	MW-01 SHEET 2 OF 2

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Boart Longyear

DRILLING EQUIPMENT AND METHOD : Spider Sonic Rig

WATER LEVELS : --- START : 1/14/12 13:15 END : 1/5/12 11:50 LOGGER : O ogbebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
		10	MC-6				Initial PID (ppm)=4.5 Headspace PID (ppm)=4.6
50	50.0						Initial PID (ppm)=3.6 Headspace PID (ppm)=2.6
							Initial PID (ppm)=2.8 Headspace PID (ppm)=2.4
55		10	MC-7				Initial PID (ppm)=1.4 Headspace PID (ppm)=2.6
							Initial PID (ppm)=1.6 Headspace PID (ppm)=3.0
60	60.0						Initial PID (ppm)=1.1 Headspace PID (ppm)=1.6
							Initial PID (ppm)=1.6 Headspace PID (ppm)=1.6
							Initial PID (ppm)=0.4 Headspace PID (ppm)=2.1
65		10	MC-8				Initial PID (ppm)=1.8 Headspace PID (ppm)=2.4
					67-83.5' - Sand (SP), soft, fine to medium, little silt, dark gray 2.5YR 4/1, wet, loose		Initial PID (ppm)=1.6 Headspace PID (ppm)=2.1
70	70.0						
							Initial PID (ppm)=0.8 Headspace PID (ppm)=4.3
							Initial PID (ppm)=0.4 Headspace PID (ppm)=1.8
75		10	MC-9				Initial PID (ppm)=0.4 Headspace PID (ppm)=1.8
							Initial PID (ppm)=0.4 Headspace PID (ppm)=2.1
80	80.0						Initial PID (ppm)=0.4 Headspace PID (ppm)=0.4
							Initial PID (ppm)=6.1 Headspace PID (ppm)=3.1
		4	MC-10				
	84.0						Initial PID (ppm)=4.4 Headspace PID (ppm)=2.6
85					83.5-84' - Weathered shale, very dary gray 10YR 3/1, moist, hard		Initial PID (ppm)=3.2 Headspace PID (ppm)=2.5
					Bottom of Boring at 84.0 ft bgs on 1/14/12 13:15		
90							

CH2MHILL

PROJECT NUMBER:	BORING NUMBER:
420671	MW-02 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Boart Longyear

DRILLING EQUIPMENT AND METHOD : Spider Sonic Rig

WATER LEVELS : ▼ --- START : 1/5/12 17:00 END : 1/5/12 17:40 LOGGER : O. Ogbebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
	0.0	5	MC-1		0-4' - Sand (fine to medium) (SP), brown 7.5 YR 4/4, moist, loose		Initial PID (ppm)=0.1 Headspace PID (ppm)=0.9 Initial PID (ppm)=0.8 Headspace PID (ppm)=0.4
5	5.0				4-5' - Sand (fine to medium) with crushed concrete (SP), brown 7.5YR 4/4, moist, loose		Initial PID (ppm)=1.3 Headspace PID (ppm)=2.4
					5-10' - No recovery		
10	10.0	10	MC-2		10-10.5' - Sand (fine to medium) with crusthed concrete (SP), brown, 4.5YR 4/4 4-5' intervals but wet		Initial PID (ppm)=11.0
					10.5-12' - crushed concrete with re-bar, wet		
					12-18' - Gravelly sand (SW), brown, 7.5YR 4/5, wet, loose, gravel grains are rounded to well rounded		Initial PID (ppm)=12.0 Headspace PID (ppm)=1.68
15							Initial PID (ppm)=4.6 Headspace PID (ppm)=8.4
					18-24' - Gravelly sand (SW), brown, 7.5YR 4/5, moist, loose, gravel grainey, rounded to well rounded		Initial PID (ppm)=3.2 Headspace PID (ppm)=9.1
20	20.0						Initial PID (ppm)=4.1 Headspace PID (ppm)=8.6 Initial PID (ppm)=0.4 Headspace PID (ppm)=0.1
25		10	MC-3		24-30' - Gravelly sand (SW), brown, 7.5YR 4/5, loose, gravel grainey, rounded to well rounded, 3" clay seams at 26.25' bgs		Initial PID (ppm)=1.0 Headspace PID (ppm)=8.1 Initial PID (ppm)=1.4 Initial PID (ppm)=1.6 Headspace PID (ppm)=0.6
30	30.0				Bottom of Boring at 30.0 ft bgs on 1/5/12 17:00		
35							

CH2MHILL

PROJECT NUMBER:	BORING NUMBER:
420671	MW-03 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Boart Longyear

DRILLING EQUIPMENT AND METHOD : Spider Sonic Rig

WATER LEVELS : ▼ --- START : 1/6/12 15:00 END : 1/6/12 16:10 LOGGER : O. Ogbebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
	0.0				0-1' - Sand, gravel, silt, wire, asphalt (road FILL)		Initial PID (ppm)=1.1 Headspace PID (ppm)=0.4
					1-8' - Clay (CL), some silt, few sand, trace of gravel, strong brown, 7.5YR 4/5, dry, medium plastic when wet but friable when dry, firm		
5		10	MC-1				Initial PID (ppm)=1.1 Headspace PID (ppm)=1.6 Initial PID (ppm)=1.8 Headspace PID (ppm)=2.1 Initial PID (ppm)=1.4 Headspace PID (ppm)=2.6
10	10.0				8-11' - Silt (ML), some clay with fine sand, strong brown 7.5YR 4/5, moist non plastic, firm		Initial PID (ppm)=1.6 Headspace PID (ppm)=2.6
					11-13' - Sand with some silt, clay and gravel (SW), strong brown, 7.5YR 4/5, moist, loose		Initial PID (ppm)=7.4 Headspace PID (ppm)=4.6
15		10	MC-2		13-20' - Gravelly sand with silt (SW), brown, 7.5YR 4/4, moist, loose, gravel is subrounded to well rounded		Initial PID (ppm)=6.3 Headspace PID (ppm)=13.5
20	20.0						Initial PID (ppm)=14.4 Headspace PID (ppm)=14.8
		2.5	MC-3		20-22.5' - Gravelly sand with silt (SW), brown, 7.5YR 4/4, moist, loose, gravel is subrounded to well rounded, wet toward 22.5 ft		Initial PID (ppm)=14.6 Headspace PID (ppm)=15
	22.5				22.5-30' - No Recovery		
25							Initial PID (ppm)=4.6 Headspace PID (ppm)=8.0
30	30.0						
		5	MC-4		30-35' - Gravelly sand with silt (SW), brown, 7.5YR 4/4, wet, loose, gravel is subrounded to well rounded		Initial PID (ppm)=4.3 Headspace PID (ppm)=4.3 Initial PID (ppm)=4.8 Headspace PID (ppm)=5.2 Initial PID (ppm)=4.4 Headspace PID (ppm)=5.6
35	35.0						
					Bottom of Boring at 35.0 ft bgs on 1/6/12 15:00		

PROJECT NUMBER:	BORING NUMBER:
420671	MW-04 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Boart Longyear

DRILLING EQUIPMENT AND METHOD : Spider Sonic Rig

WATER LEVELS : --- START : 1/10/12 14:15 END : 1/12/12 16:10 LOGGER : O. Ogbebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
0	0.0				0-1' - Sand with some silt, clay, gravelly crushed concrete (SW), dark yellowish brown, 10YR 4/4, moist, loose		Initial PID (ppm)=0.1 Headspace PID (ppm)=11.4
					1-5.25' - Clay with some silt (CL), brownish yellow 10YR 6/8 with some pale brown 10YR 6/3, moist, loose, dry, non plastic,friable, very stiff		Initial PID (ppm)=2.3 Headspace PID (ppm)=18.3
5		10	MC-1				
					5.25-9' - Clay with some silt (CL), brownish yellow 10YR 6/8 with some pale brown 10YR 6/3, moist, loose, non plastic, friable, stiff		Initial PID (ppm)=2.1 Headspace PID (ppm)=16.4
10	10.0				9-11.5' - Clay with some silt (CL), brownish yellow 10YR 6/8 with some pale brown 10YR 6/3, wet, loose, moist, fine-medium plastic, soft		Initial PID (ppm)=10.6 Headspace PID (ppm)=20.2
					11.5-21' - Clayey silt with some fine sand and gravel (SW), strong brown 7.5YR 6/8, with pale brown 14YR 6/8, mottling, wet, firm, non plastic		Initial PID (ppm)=4.8 Headspace PID (ppm)=22.4
15		10	MC-2				Initial PID (ppm)=6.8 Headspace PID (ppm)=10.6
							Initial PID (ppm)=14.3 Headspace PID (ppm)=12.6
20	20.0						Initial PID (ppm)=8.4 Headspace PID (ppm)=18.4
					21-35' - Gravelly sand with little silt (SW), brown 7.5YR 4/4, wet, loose		Initial PID (ppm)=8.9 Headspace PID (ppm)=10.3
25		10	MC-3				Initial PID (ppm)=10.1 Headspace PID (ppm)=10.4
							Initial PID (ppm)=12.1 Headspace PID (ppm)=12.6
30	30.0						Initial PID (ppm)=6.8 Headspace PID (ppm)=16.6
							Initial PID (ppm)=6.8 Headspace PID (ppm)=10.0
		5	MC-4				
35	35.0						Initial PID (ppm)=3.6 Headspace PID (ppm)=10.9
							Initial PID (ppm)=10.2 Headspace PID (ppm)=10.3
					Bottom of Boring at 35.0 ft bgs on 1/12/12 14:15		
40							

PROJECT NUMBER:	BORING NUMBER:
420671	MW-05 SHEET 1 OF 2

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Boart Longyear

DRILLING EQUIPMENT AND METHOD : Spider Sonic Rig

WATER LEVELS : --- START : 1/2/12 08:40 END : 1/9/12 17:20 LOGGER : O. Ogbebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
0	0.0				0-0.8' - Concrete cored		Initial PID (ppm)=300
					0.8-3.5' - Silt with some clay, (ML), little sand and some gravel, dark grayish brown 2.5YR 4/2, moist, non plastic, mottling, strong chemical odor		Initial PID (ppm)=300 Initial PID (ppm)=10.6 Headspace PID (ppm)=40.5
5		10	MC-1		3.5-8' - Clay (CL), with some silt, strong brown 7.5YR 5/6, with gray 7.5YR 5/1, mottling, dry, non plastic, soft		Initial PID (ppm)=1.8 Headspace PID (ppm)=2.6 Initial PID (ppm)=2.4 Headspace PID (ppm)=4.3
10	10.0				8-12' - Clay (CL), with some silt, strong brown 7.5YR 5/6, pale gray 7.5YR 5/1, mottling, moist, low plasticity, soft		Initial PID (ppm)=1.6 Headspace PID (ppm)=2.8
					12-17.5' - Silt (ML), with some clay, fine sand, strong brown 2.5YR 5/6, moist, non plastic, firm		Initial PID (ppm)=1.4 Headspace PID (ppm)=2.4
15		10	MC-2				Initial PID (ppm)=1.8 Headspace PID (ppm)=3.8
					17.5-20' - Gravelly sand (SW), brown 7.5YR 4/4, moist, loose, gravel grains are subrounded to rounded		Initial PID (ppm)=6.4 Headspace PID (ppm)=5.8
20	20.0				20-29' - Gravelly sand (SW), brown 7.5YR 4/4, loose, gravel grains are subrounded to rounded		Initial PID (ppm)=10.4 Headspace PID (ppm)=16.3
25		10	MC-3				Initial PID (ppm)=4.6 Headspace PID (ppm)=12.6 Initial PID (ppm)=18.4 Headspace PID (ppm)=22.1
							Initial PID (ppm)=20.3 Headspace PID (ppm)=24.3
30	30.0				29-45' - Sand (SW), few silt, trace gravel (cobble), fine to coarse grained, brownish yellow 10YR 6/8, wet, loose, gravel grains are sub angular to subrounded		Initial PID (ppm)=3.1 Headspace PID (ppm)=6.8 Initial PID (ppm)=8.11 Headspace PID (ppm)=16.4
35		10	MC-4				Initial PID (ppm)=6.8 Headspace PID (ppm)=10.6
40							Initial PID (ppm)=2.4 Headspace PID (ppm)=8.6

CH2MHILL

PROJECT NUMBER:	BORING NUMBER:
420671	MW-05 SHEET 2 OF 2

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Boart Longyear

DRILLING EQUIPMENT AND METHOD : Spider Sonic Rig

WATER LEVELS : --- START : 1/2/12 08:40 END : 1/9/12 17:20 LOGGER : O. Ogbebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
	40.0						Initial PID (ppm)=3.4 Headspace PID (ppm)=16.8
							Initial PID (ppm)=2.6 Headspace PID (ppm)=10.6
45		5	MC-5		45-50' - No recovery		Initial PID (ppm)=6.8 Headspace PID (ppm)=18
50	50.0				50-54' - Gravelly sand (SW), fine to coarse grained, brown 7.5YR 4/4, moist, loose gravel, grains are subrounded to rounded		Initial PID (ppm)=10.4 Headspace PID (ppm)=18.6
							Initial PID (ppm)=10.6 Headspace PID (ppm)=18
55		10	MC-6		54-76' - Gravelly sand (SW), fine to coarse grained, brown 7.5YR 4/4, moist, loose gravel, grains are subrounded to rounded		Initial PID (ppm)=8.4 Headspace PID (ppm)=18.4
							Initial PID (ppm)=12.4 Headspace PID (ppm)=15
60	60.0						Initial PID (ppm)=3.6 Headspace PID (ppm)=14
65		10	MC-7				Initial PID (ppm)=9.4 Headspace PID (ppm)=16.2
							Initial PID (ppm)=7.6 Headspace PID (ppm)=10
70	70.0						Initial PID (ppm)=6.1 Headspace PID (ppm)=10.1
							Initial PID (ppm)=2.6 Headspace PID (ppm)=4.6
75		10	MC-8				Initial PID (ppm)=1.6 Headspace PID (ppm)=3.2
					76-79' - Weathered shale, dark gray, dry, hard		Initial PID (ppm)=10.4
80	80.0						
					Bottom of Boring at 80.0 ft bgs on 1/2/12 08:40		

PROJECT NUMBER:	BORING NUMBER:
420671	MW-06 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Boart Longyear

DRILLING EQUIPMENT AND METHOD : Spider Sonic Rig

WATER LEVELS : --- START : 1/9/12 16:30 END : 1/9/12 17:20 LOGGER : O. Ogbebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
0	0.0				0-0.5' - Clay with some silt (CL), some sand, little gravel, brown 10YR 4/3, moist, non plastic, some rootlets		Initial PID (ppm)=0.1 Headspace PID (ppm)=1.1
					0.5-1.5' - Clay with some silt (CL), some sand, little gravel, brown 10YR 4/3, moist, non plastic		Initial PID (ppm)=0.4 Headspace PID (ppm)=1.0
5		10	MC-1		1.5-8' - Clay with some silt (CL), brownish yellow 10YR 6/6 with light brownish gray mottlings, dry, non plastic, friable, soft		Initial PID (ppm)=0.2 Headspace PID (ppm)=2.1 Headspace PID (ppm)=2.8
10	10.0				8-10.5' - Clay with some silt (CL), brownish yellow 10YR 6/6 with light brownish gray mottlings, moist, medium plastic, friable, stiff		Initial PID (ppm)=2.6 Headspace PID (ppm)=2.8
					10.5-12' - Clayey silt (ML), some sand, trace gravel, strong brown 7.5YR 4/6, moist, low plasticity, hard		
15		10	MC-2		12-18' - Clayey silt (ML), some sand, trace gravel, strong brown 7.5YR 4/6, wet, low plasticity, hard		Initial PID (ppm)=1.4 Headspace PID (ppm)=2.1 Initial PID (ppm)=0.8 Headspace PID (ppm)=2.1 Initial PID (ppm)=1.6 Headspace PID (ppm)=2.2
20	20.0				18-21.5' - Gravelly sand (SW), with silt, strong brown 7.5YR 4/6, moist, loose, gravel is subanguler to rounded		Initial PID (ppm)=1.4 Headspace PID (ppm)=2.1
					21.5-33' - Gravelly sand (SW), with silt, strong brown 7.5YR 4/6, wet, loose, gravel is subanguler to rounded		Initial PID (ppm)=2.0 Headspace PID (ppm)=2.0
25		10	MC-3				Initial PID (ppm)=2.4 Headspace PID (ppm)=2.4
30	30.0						Initial PID (ppm)=1.8 Headspace PID (ppm)=2.8 Initial PID (ppm)=1.1 Headspace PID (ppm)=2.4
		5	MC-4				Initial PID (ppm)=0.1 Headspace PID (ppm)=2.4 Initial PID (ppm)=0.4 Headspace PID (ppm)=4.3
35	35.0				33-34' - Sand (SP), fine to medium grained, trace gravel (cobble size), brown 7.5YR 4/3, wet, loose		Initial PID (ppm)=1.3 Headspace PID (ppm)=2.1
					34-35' - Gravelly sand (GW), brown 7.5YR 4/3, wet, loose		Initial PID (ppm)=0.9 Headspace PID (ppm)=2.0
40					Bottom of Boring at 35.0 ft bgs on 1/9/12 16:30		

PROJECT NUMBER:	BORING NUMBER:
420671	MW-07 SHEET 1 OF 3

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Boart Longyear

DRILLING EQUIPMENT AND METHOD : Spider Sonic Rig

WATER LEVELS : --- START : 1/9/12 09:05 END : 1/9/12 10:20 LOGGER : O. Ogbebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
0	0.0				0-4' - Clay (CL), some silt, strong brown 7.5YR 5/8, dry, friable (plastic when wet), soft		initial PID (ppm)=0.0 Headspace PID (ppm)=0.0 Initial PID (ppm)=0.1 Headspace PID (ppm)=0.1
5		10	MC-1		4-11' - Silt (ML), some clay, fine sand, strong brown 7.5YR 5/8, moist, low plastic, firm		Initial PID (ppm)=0.1 Headspace PID (ppm)=0.6 Initial PID (ppm)=0.2 Headspace PID (ppm)=0.4
10	10.0						Initial PID (ppm)=0.1 Headspace PID (ppm)=0.9
		10	MC-2		11-15.5' - Silty fine sand (SM), strong brown 7.5YR 5/8, wet, firm		Initial PID (ppm)=1.1 Headspace PID (ppm)=0.4
15					15.5-17' - Gravelly silt (GM), some fine sand, little clay, brown 7.5YR 4/4, moist, firm		Initial PID (ppm)=1.2 Headspace PID (ppm)=1.1
					17-27.5' - Gravelly sand (SW), brown 7.5YR 4/4, moist, loose, gravel is rounded		Initial PID (ppm)=1.0 Headspace PID (ppm)=0.9
20	20.0						Initial PID (ppm)=1.4 Headspace PID (ppm)=2.2
25		10	MC-3				Initial PID (ppm)=0.6 Headspace PID (ppm)=2.0 Initial PID (ppm)=1.2 Headspace PID (ppm)=1.8
30	30.0				27.5-34' - Gravelly sand (SW), brown 7.5YR 4/4, wet, loose, gravel is rounded		Initial PID (ppm)=1.4 Headspace PID (ppm)=3.1
							Initial PID (ppm)=1.1 Headspace PID (ppm)=2.0 Initial PID (ppm)=2.1 Headspace PID (ppm)=4.4
35							Initial PID (ppm)=1.6 Headspace PID (ppm)=4.6

PROJECT NUMBER:	BORING NUMBER:
420671	MW-07 SHEET 2 OF 3

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Boart Longyear

DRILLING EQUIPMENT AND METHOD : Spider Sonic Rig

WATER LEVELS : --- START : 1/9/12 09:05 END : 1/9/12 10:20 LOGGER : O. Ogbebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
		10	MC-4		34-37' - Sand (SW), little gravel, little silt, brown 7.5YR 4/3, wet, loose		Initial PID (ppm)=0.8 Headspace PID (ppm)=6.1
					37-39.5' - Gravelly sand (SW), trace silt, dark brown 7.5YR 3/3, wet, loose, gravel grains are fine and subanguler to rounded		Initial PID (ppm)=1.2 Headspace PID (ppm)=2.8
40	40.0				39.5-40.25' - Sandy gravel (GW), few silt, brown 7.5YR 3/3, wet, loose, gravel grains are fine to coarse and subangular to rounded		Initial PID (ppm)=6.4 Headspace PID (ppm)=10.2
					40.25-62' - Sand (SW), few gravel, trace silt, brown 7.5YR 4/4, wet, loose, coal from 44.5-44.75 ft		Initial PID (ppm)=10.7 Headspace PID (ppm)=28.6
45		10	MC-5				Initial PID (ppm)=32.1 Headspace PID (ppm)=36.2
							Initial PID (ppm)=10.4 Headspace PID (ppm)=18.6
50	50.0						Initial PID (ppm)=10.3 Headspace PID (ppm)=20.4
							Initial PID (ppm)=10.8 Headspace PID (ppm)=10.4
55		10	MC-6				Initial PID (ppm)=0.9 Headspace PID (ppm)=2.3
							Initial PID (ppm)=0.3 Headspace PID (ppm)=1.8
60	60.0						Initial PID (ppm)=0.1 Headspace PID (ppm)=1.6
							Initial PID (ppm)=0.6 Headspace PID (ppm)=1.4
					62-67' - Sand (SW), few gravel, trace silt, brown 7.5YR 4/2, wet, loose		Initial PID (ppm)=1.3 Headspace PID (ppm)=1.8
65		10	MC-7				Initial PID (ppm)=1.4 Headspace PID (ppm)=1.6
					67-79' - Gravelly sand (SW), little silt, very dark gray 7.5YR 3/1, wet, loose, gravel grains are subangular to rounded		Initial PID (ppm)=1.8 Headspace PID (ppm)=2.2
70							

PROJECT NUMBER:	BORING NUMBER:
420671	MW-07 SHEET 3 OF 3

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Boart Longyear

DRILLING EQUIPMENT AND METHOD : Spider Sonic Rig

WATER LEVELS : --- START : 1/9/12 09:05 END : 1/9/12 10:20 LOGGER : O. Ogbebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
70.0							Initial PID (ppm)=1.0 Headspace PID (ppm)=1.8
							Initial PID (ppm)=0.8 Headspace PID (ppm)=1.4
75							
		12	MC-8				Initial PID (ppm)=1.2 Headspace PID (ppm)=2.1
							Initial PID (ppm)=0.4 Headspace PID (ppm)=1.0
80					79-81' - Weathered shale (Bedrock), gray, moist, dense		Initial PID (ppm)=2.6 Headspace PID (ppm)=2.4 Initial PID (ppm)=0.1
82.0					81-82' - Bedrock (shale), dry, hard		Initial PID (ppm)=0.1 Headspace PID (ppm)=1.0
					Bottom of Boring at 82.0 ft bgs on 1/9/12 09:05		
85							
90							
95							
100							
105							

PROJECT NUMBER:	BORING NUMBER:
420671	S01-SS01 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Subsurface Inc.

DRILLING EQUIPMENT AND METHOD : DPT Power Probe, 9500 VTR

WATER LEVELS : --- START : 12/9/11 10:50 END : 12/9/11 11:35 LOGGER : O. Ogbebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
	0.0	5	MC-1		0-0.5' - Asphalt 0.5-6.5' - Silt with some clay (ML), strong brown 7.5YR 5/8, dry, non plastic, firm, slight moth ball like odor		Initial PID (ppm)=0.0 Headspace PID (ppm)=0.1 S01-SS01-0002-120911-Collected from 0.5-2 ft Initial PID (ppm)=10.4 Headspace PID (ppm)=2.8
5	5.0	5	MC-2		6.5-11.5' - Silt with fine sand (ML), strong brown 7.5YR 5/8, moist, non plastic, firm strong moth ball like odor		S01-SS01-0002-120911-Collected from 3-5 ft Initial PID (ppm)=18.6 Headspace PID (ppm)=5.0 Initial PID (ppm)=3.8 Headspace PID (ppm)=6.8
10	10.0	5	MC-3		11.5-23.5' - Gravelly sand (SW), brown 7.5YR 4/3, dry, loose, strong moth ball like odor		S01-SS01-0002-120911-Collected from 8-10 ft Initial PID (ppm)=16.5 Headspace PID (ppm)=19.8 Initial PID (ppm)=12.0 Headspace PID (ppm)=6.9
15	15.0	5	MC-4				Initial PID (ppm)=8.6 Headspace PID (ppm)=1.0 Initial PID (ppm)=8.4 Headspace PID (ppm)=14.1
20	20.0	5	MC-5				Initial PID (ppm)=9.6 Headspace PID (ppm)=1.3 Initial PID (ppm)=10.4 Headspace PID (ppm)=14.2
25	25.0				23.5-25' - Gravelly sand (SW), brown 7.5YR 4/3, wet, loose, strong moth ball like odor		Initial PID (ppm)=3.8 Headspace PID (ppm)=1.2
					Bottom of Boring at 25.0 ft bgs on 12/9/11 10:50		

CH2MHILL

PROJECT NUMBER:	BORING NUMBER:	
420671	S01-SS02	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Subsurface Inc.

DRILLING EQUIPMENT AND METHOD : DPT Power Probe, 9500 VTR

WATER LEVELS : ▼ --- START : 12/9/11 11:40 END : 12/9/11 13:15 LOGGER : O. Ogbebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
0	0.0				0-0.5' - Asphalt		
		5	MC-1		0.5-7' - Silt with clay (ML), strong brown 7.5YR 5/8, dry, non plastic, firm, moth ball like odor from about 3 ft bgs		Initial PID (ppm)=0.0 Headspace PID (ppm)=0.6 S01-SS02-0002-120911-Collected from 0.5-2 ft Initial PID (ppm)=620 Headspace PID (ppm)=857
5	5.0						S01-SS02-0308-120911-Collected from 3-5 ft Initial PID (ppm)=896 Headspace PID (ppm)=1408
		5	MC-2		7-11' - Silty fine sand (SM), strong brown 7.5YR 5/8, moist, non plastic, firm, strong moth ball like odor		Initial PID (ppm)=680 Headspace PID (ppm)=1091 Initial PID (ppm)=394 Headspace PID (ppm)=180 S01-SS02-0810-12911-Collected from 8-10 ft
10	10.0						Initial PID (ppm)=98 Headspace PID (ppm)=130
		5	MC-3		11-24' - Gravelly sand (SW), brown 7.5YR 4/4, moist, loose, slight moth ball like odor		Initial PID (ppm)=20 Headspace PID (ppm)=68
15	15.0						Initial PID (ppm)=26 Headspace PID (ppm)=29.1
		5	MC-4				Initial PID (ppm)=23 Headspace PID (ppm)=29.8
20	20.0						Initial PID (ppm)=2.8 Headspace PID (ppm)=24.9 S01-SS02-2123-120911-Collected from 21-23 ft
		5	MC-5				Initial PID (ppm)=20.9 Headspace PID (ppm)=38.1
25	25.0				24-25' - Gravelly sand (SW), brown 7.5YR 4/4, wet, loose, slight moth ball like odor		Initial PID (ppm)=20.1 Headspace PID (ppm)=44
					Bottom of Boring at 25.0 ft bgs on 12/9/11 11:40		

PROJECT NUMBER:	BORING NUMBER:
420671	S01-SS03 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Subsurface Inc.

DRILLING EQUIPMENT AND METHOD : DPT Power Probe, 9500 VTR

WATER LEVELS : --- START : 12/12/11 09:46 END : 12/12/2011 LOGGER : O. Ogbebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
	0.0				0-0.5' - Asphalt		
		5	MC-1		0.5-7.25' - Silt with some clay, little fine sand (ML), strong brown 7.5YR 5/8, dry, non plastic, firm		Initial PID (ppm)=0.1 Headspace PID (ppm)=0.1 S01-SS03-0002-121211- collected from 0.5-2 ft S01-SS03-0002-121211-MS- collected from 0.5-2 ft S01-SS03-0002-121211-MSD- collected from 0.5-2 ft Initial PID (ppm)=2.2 Headspace PID (ppm)=4.0 S01-SS03-0305-121211-Collected from 3-5 ft
5	5.0						Initial PID (ppm)=5.8 Headspace PID (ppm)=8.6
		5	MC-2		7.25-10' - Silty fine sand (SM), strong brown 7.5YR 5/8, dry, non plastic, firm		Initial PID (ppm)=2.1 Headspace PID (ppm)=5.4 SS01-SS03-0810-121211-Collected from 8-10 ft
10	10.0						
		5	MC-3		10-15' - Gravelly sand (SW), brown 7.5YR 4/3, dry, loose		Initial PID (ppm)=2.6 Headspace PID (ppm)=3.9 Initial PID (ppm)=0.8 Headspace PID (ppm)=2.1 SS01-SS03-1315-121211-Collected from 13 to 15 ft Initial PID (ppm)=0.1 Headspace PID (ppm)=2.0
15	15.0						
					Bottom of Boring at 15.0 ft bgs on 12/12/11 09:46		

PROJECT NUMBER:	BORING NUMBER:
420671	S01-SS04 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Subsurface Inc.

DRILLING EQUIPMENT AND METHOD : DPT Power Probe, 9500 VTR

WATER LEVELS : --- START : 12/12/11 10:56 END : 12/12/11 11:30 LOGGER : O. Ogbebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
	0.0				0-0.5' - Asphalt		
		5	MC-1		0.5-7.5' - Silty clay (CL), strong brown 7.5YR 5/8, dry, non plastic, stiff, clay with some silt		Initial PID (ppm)=0.1 Headspace PID (ppm)=0.3 S01-SS04-0002-121211-Collected from 0-2 ft Initial PID (ppm)=6.1 Headspace PID (ppm)=6.5
							Initial PID (ppm)=6.1 Headspace PID (ppm)=6.5 S01-SS04-0305-121211-Collected from 3-5 ft Initial PID (ppm)=6.1 Headspace PID (ppm)=0.9
5	5.0						Initial PID (ppm)=6.1 Headspace PID (ppm)=1.2
		5	MC-2				Initial PID (ppm)=0.1 Headspace PID (ppm)=1.2 Initial PID (ppm)=0.1 Headspace PID (ppm)=1.3
					7.5-10' - Sandy silt (ML), strong brown 7.5YR 5/8, non plastic, medium stiff, silt with some sand		Initial PID (ppm)=0.1 Headspace PID (ppm)=1.3 S01-SS04-0810-121211-Collected from 8-10 ft Initial PID (ppm)=0.2 Headspace PID (ppm)=1.5
10	10.0						Initial PID (ppm)=0.2 Headspace PID (ppm)=1.5
					Bottom of Boring at 10.0 ft bgs on 12/12/11 10:56		

PROJECT NUMBER:	BORING NUMBER:
420671	S01-SS05 SHEET 1 OF 2

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Subsurface Inc.

DRILLING EQUIPMENT AND METHOD : DPT Power Probe, 9500 VTR

WATER LEVELS : --- START : 12/12/11 12:00 END : 12/12/11 13:45 LOGGER : O. Ogbebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
	0.0				0-0.5' - Asphalt		
		5	MC-1		0.5-8' - Silty clay (CL), strong brown 7.5YR 5/8, dry, non plastic, stiff, clay with some silt		Initial PID (ppm)=0.3 Headspace PID (ppm)=1.6 S01-SS05-0002-121211-Collected from 0-2 ft Initial PID (ppm)=0.5 Headspace PID (ppm)=1.3
							Initial PID (ppm)=3.7 Headspace PID (ppm)=1.1 S01-SS05-0305-121211-Collected from 3-5 ft Initial PID (ppm)=1.9 Headspace PID (ppm)=3.5
5	5.0						
		5	MC-2				Initial PID (ppm)=1.8 Headspace PID (ppm)=7.8 Initial PID (ppm)=5.4 Headspace PID (ppm)=5.6 Initial PID (ppm)=1.4 Headspace PID (ppm)=7.6
					8-11' - Sandy silt (ML), strong brown 7.5YR 5/8, dry, non plastic, medium stiff, silt with some sand		Initial PID (ppm)=8.5 Headspace PID (ppm)=8.6 S01-SS05-0810-121211-Collected from 8-10 ft Initial PID (ppm)=16.2 Headspace PID (ppm)=19.5
10	10.0						
		5	MC-3		11-20' - Sandy gravel (GP), poorly graded, coarse grained, strong brown 7.5YR 5/8, moist, gravel and sand		Initial PID (ppm)=0.7 Headspace PID (ppm)=22.5 Initial PID (ppm)=0.5 Headspace PID (ppm)=1.9 Initial PID (ppm)=1.0 Headspace PID (ppm)=7.3 Initial PID (ppm)=0.6 Headspace PID (ppm)=8.8 Initial PID (ppm)=0.3 Headspace PID (ppm)=7.1
15							

CH2MHILL

PROJECT NUMBER:	BORING NUMBER:	
420671	S01-SS05	SHEET 2 OF 2

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Subsurface Inc.

DRILLING EQUIPMENT AND METHOD : DPT Power Probe, 9500 VTR

WATER LEVELS : ▼ --- START : 12/12/11 12:00 END : 12/12/11 13:45 LOGGER : O. Ogbebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
	15.0						Initial PID (ppm)=0.3 Headspace PID (ppm)=19.3
							Initial PID (ppm)=1.3 Headspace PID (ppm)=14.5
		5	MC-4				Initial PID (ppm)=4.2 Headspace PID (ppm)=15.7
							Initial PID (ppm)=0.6 Headspace PID (ppm)=1.5
							Initial PID (ppm)=2.8 Headspace PID (ppm)=5.4
20	20.0						
					20-22' - Clayey sandy gravel (GP), poorly graded, coarse grained, moist, gravel and stand with trace clay		Initial PID (ppm)=2.2 Headspace PID (ppm)=20.7
							Initial PID (ppm)=0.1 Headspace PID (ppm)=1.4
		5	MC-5		22-24' - Sandy gravel (GP), poorly graded, coarse grained, moist, gravel and sand		Initial PID (ppm)=1.3 Headspace PID (ppm)=1.4 S01-SS05-2123-121211-Collected from 21-23 ft Initial PID (ppm)=0.1 Headspace PID (ppm)=0.5
					24-25' - Sandy gravel (GP), poorly graded, coarse grained, wet, gravel and sand		Initial PID (ppm)=0.6 Headspace PID (ppm)=2.0 Initial PID (ppm)=6.5 Headspace PID (ppm)=5.2
25	25.0						
					Bottom of Boring at 25.0 ft bgs on 12/12/11 12:00		
30							

PROJECT NUMBER:	BORING NUMBER:
420671	S01-SS06 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Subsurface Inc.

DRILLING EQUIPMENT AND METHOD : DPT Power Probe, 9500 VTR

WATER LEVELS : --- START : 12/12/11 14:00 END : 12/12/11 15:30 LOGGER : O. Ogbebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
	0.0				0-0.5' - Asphalt		
		5	MC-1		0.5-7' - Silt with clay and fine sand (ML), strong brown 7.5YR 5/8, moist, non plastic, firm		Initial PID (ppm)=0.0 Headspace PID (ppm)=0.0 S01-SS06-0002-121211-Collected from 0.5-2 ft Initial PID (ppm)=1.2 Headspace PID (ppm)=2.6 S01-SS06-0305-121211-Collected from 3-5 ft
5	5.0						Initial PID (ppm)=8.9 Headspace PID (ppm)=20.9
		5	MC-2		7-10' - Silty fine sand (SM), strong brown 7.5YR 5/8, moist, non plastic, firm		Initial PID (ppm)=4.1 Headspace PID (ppm)=10.1 S01-SS06-0810-121211-Collected from 8-10 ft Initial PID (ppm)=4.6 Headspace PID (ppm)=6.4
10	10.0						
			MC-3		10-15' - Gravelly sand (SW), brown 7.5YR 4/3, moist, loose		Initial PID (ppm)=5.3 Headspace PID (ppm)=8.9 Initial PID (ppm)=0.8 Headspace PID (ppm)=2.6 S01-SS06-1315-121211-Collected from 13-15 ft Initial PID (ppm)=0.6 Headspace PID (ppm)=1.4
15	15.0						
					Bottom of Boring at 15.0 ft bgs on 12/12/11 14:00		

PROJECT NUMBER:	BORING NUMBER:
420671	S01-SS07 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Subsurface Inc.

DRILLING EQUIPMENT AND METHOD : DPT Power Probe, 9500 VTR

WATER LEVELS : --- START : 12/12/11 17:05 END : 12/12/11 17:20 LOGGER : O. Ogbebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
	0.0				0-0.5' - Asphalt		
					0.5-1' - Crushed gray shale		
		5	MC-1		1-7' - Silt (ML), some fine sand, clay, strong brown 7.5YR 5/8, moist, non plastic, firm		Initial PID (ppm)=0.0 Headspace PID (ppm)=0.1 S01-SS07-0002-121211-Collected from 0.5-2 ft
							Initial PID (ppm)=0.1 Headspace PID (ppm)=0.3 S01-SS07-0305-121211-Collected from 3-5 ft
5	5.0						Initial PID (ppm)=0.1 Headspace PID (ppm)=0.9
		5	MC-2		7-10' - Silty fine sand (SM), strong brown 7.5YR 5/8, moist, non plastic, firm		Initial PID (ppm)=0.1 Headspace PID (ppm)=0.6
							Initial PID (ppm)=0.1 S01-SS06-0810-121211-Collected from 8-10 ft
							Headspace PID (ppm)=0.7
10	10.0						Initial PID (ppm)=0.1 Headspace PID (ppm)=0.8
					Bottom of Boring at 10.0 ft bgs on 12/12/11 17:05		

CH2MHILL

PROJECT NUMBER:	BORING NUMBER:
420671	S01-SS08 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Subsurface Inc.

DRILLING EQUIPMENT AND METHOD : DPT Power Probe, 9500 VTR

WATER LEVELS : --- START : 12/12/11 16:05 END : 12/12/11 16:50 LOGGER : O. Ogbebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
	0.0				0-0.5' - Asphalt		
					0.5-1.5' - Crushed grayish gravel		Initial PID (ppm)=0.0 Headspace PID (ppm)=0.1 S01-SS08-0002-121211-Collected from 0.5-2 ft
		5	MC-1		1.5-6.5' - Silt, with some fine sand and clay (ML), strong brown 7.5YR 5/8, light gray 7.5YR 5/1, mottling, moist, non plastic, firm		Initial PID (ppm)=2.6 Headspace PID (ppm)=10.2 S01-SS08-0303-121211-Collected from 3-5 ft
5	5.0						Initial PID (ppm)=18.9 Headspace PID (ppm)=30.1
		5	MC-2		6.5-11' - Silty fine sand (SM), strong brown 7.5YR 5/8, moist, firm, slight moth ball like odor		Initial PID (ppm)=10.8 Headspace PID (ppm)=14.2 S01-SS08-0810-121211-Collected from 8-10 ft
10	10.0						Initial PID (ppm)=12.6 Headspace PID (ppm)=18.0
		5	MC-3		11-24' - Gravelly sand (SW), brown 7.5YR 4/3, moist, fine to coarse, loose, moth ball like odor		
15	15.0						Initial PID (ppm)=8.6 Headspace PID (ppm)=10.9
		5	MC-4				Initial PID (ppm)=8.4 Headspace PID (ppm)=10.6
20	20.0						Initial PID (ppm)=8.3 Headspace PID (ppm)=9.5 S01-SS08-2123-121211-Collected from 21-23 ft
		5	MC-5				Headspace PID (ppm)=10.9
25	25.0				24-25' - Gravelly sand (SW), brown 7.5YR 4/3, wet, fine to coarse, loose, moth ball like odor		
					Bottom of Boring at 25.0 ft bgs on 12/12/11 16:05		

CH2MHILL

PROJECT NUMBER:	BORING NUMBER:
420671	S01-SS09 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Subsurface Inc.

DRILLING EQUIPMENT AND METHOD : DPT Power Probe, 9500 VTR

WATER LEVELS : --- START : 12/12/11 15:40 END : 12/12/11 16:05 LOGGER : O. Ogbebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
	0.0				0-0.5' - Asphalt		
					0.5-1.5' - Crushed grayish gravel		Initial PID (ppm)=0.1 Headspace PID (ppm)=1.0 S01-SS09-0002-121211-Collected from 0.5-2 ft
		5	MC-1		1.5-7' - Silt, some fine sand and clay (ML), strong brown 7.5YR 5/7, moist, firm, non plastic		Initial PID (ppm)=0.6 Headspace PID (ppm)=1.0 S01-SS09-0305-121211-Collected from 3-5 ft
5	5.0						Initial PID (ppm)=0.4 Headspace PID (ppm)=1.9
		5	MC-2		7-10' - Silty fine sand (SM), strong brown 7.5YR 5/8, moist, non plastic, firm		Initial PID (ppm)=0.4 Headspace PID (ppm)=1.1 S01-SS09-0810-121211-Collected from 8-10 ft
10	10.0						Initial PID (ppm)=0.3 Headspace PID (ppm)=1.6
					Bottom of Boring at 10.0 ft bgs on 12/12/11 15:40		

CH2MHILL

PROJECT NUMBER:	BORING NUMBER:
420671	S11-SS01 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Subsurface Inc.

DRILLING EQUIPMENT AND METHOD : DPT Power Probe, 9500 VTR

WATER LEVELS : ▼ --- START : 12/13/11 10:15 END : 12/13/11 10:35 LOGGER : O. Ogbebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
	0.0				0-0.5' - Concrete		
					0.5-6.5' - Silt with clay (ML), strong brown 7.5YR 5/7, moist, non plastic, firm		Initial PID (ppm)=0.1 Headspace PID (ppm)=0.0 S11-SS01-002-121311-Collected from 0.5-2 ft
		5	MC-1				
							Initial PID (ppm)=0.1 Headspace PID (ppm)=0.2 S11-SS01-0305-121311-Collected from 3-5 ft
5	5.0						
							Initial PID (ppm)=0.1 Headspace PID (ppm)=0.5
							Initial PID (ppm)=0.2 Headspace PID (ppm)=0.2
					6.5-10' - Silty fine sand (SM), strong brown 7.5YR 5/8, moist, non plastic, firm, gravelly sand in macro core sleeve		
		5	MC-2				
							Initial PID (ppm)=0.1 Headspace PID (ppm)=0.0 S11-SS01-0810-121311-Collected from 8-10 ft
							Initial PID (ppm)=0.1 Headspace PID (ppm)=0.4
10	10.0						
					Bottom of Boring at 10.0 ft bgs on 12/13/11 10:15		

CH2MHILL

PROJECT NUMBER:	BORING NUMBER:
420671	S11-SS02 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Subsurface Inc.

DRILLING EQUIPMENT AND METHOD : DPT Power Probe, 9500 VTR

WATER LEVELS : ▼ --- START : 12/13/11 09:45 END : 12/13/11 10:00 LOGGER : O. Ogbebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
	0.0				0-1' - Concrete cored		
		5	MC-1		1-8' - Silt with clay (ML), strong brown 7.5YR 5/7, moist, non plastic, firm		Initial PID (ppm)=0.0 Headspace PID (ppm)=0.1 S11-SS02-0002-121311-Collected from 1-2 ft
							Initial PID (ppm)=0.2 Headspace PID (ppm)=0.1 S11-SS02-0305-121311-Collected from 3-5 ft
5	5.0						
		5	MC-2				Initial PID (ppm)=0.1 Headspace PID (ppm)=0.7
					8-10' - Silty fine sand (SM), strong brown, moist, non plastic, soft		Initial PID (ppm)=0.1 Headspace PID (ppm)=0.6 S11-SS02-0810-121311-Collected from 8-10 ft
10	10.0						Initial PID (ppm)=0.0 Headspace PID (ppm)=0.5
					Bottom of Boring at 10.0 ft bgs on 12/13/11 09:45		

PROJECT NUMBER:	BORING NUMBER:
420671	S11-SS03 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Subsurface Inc.

DRILLING EQUIPMENT AND METHOD : DPT Power Probe, 9500 VTR

WATER LEVELS : --- START : 12/13/11 09:15 END : 12/13/11 09:35 LOGGER : O. Ogbebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
	0.0				0-0.5' - Concrete cored		
					0.5-7' - Silt with clay (ML), strong brown 7.5YR 5/8, dry, non plastic, stiff		Initial PID (ppm)=0.0 Headspace PID (ppm)=0.0 S11-SS03-0002-121311-Collected from 0.5-2 ft
		5	MC-1				
							Initial PID (ppm)=0.1 Headspace PID (ppm)=0.1 S11-SS03-0305-121311-Collected from 3-5 ft
5	5.0						Initial PID (ppm)=0.1 Headspace PID (ppm)=0.9
					7-10' - Silty fine sand (SM), strong brown 7.5YR 5/8, moist, non plastic, firm		Initial PID (ppm)=0.0 Headspace PID (ppm)=0.6
		5	MC-2				
							Initial PID (ppm)=0.1 Headspace PID (ppm)=0.8 S11-SS03-0810-121311-Collected from 8-10 ft
10	10.0						Initial PID (ppm)=0.1 Headspace PID (ppm)=0.4
					Bottom of Boring at 10.0 ft bgs on 12/13/11 09:15		

PROJECT NUMBER:	BORING NUMBER:
420671	S11-SS04 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Subsurface Inc.

DRILLING EQUIPMENT AND METHOD : DPT Power Probe, 9500 VTR

WATER LEVELS : --- START : 12/13/11 08:40 END : 12/13/11 09:10 LOGGER : O. Ogbebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
	0.0				0-1' - Concrete cored		
					1-7' - Silt with clay (ML), strong brown 7.5YR 5/8, moist, non plastic, firm		Initial PID (ppm)=0.0 S11-SS04-0002-121311-Collected from 1-2 ft bgs
		5	MC-1				Initial PID (ppm)=0.0 Headspace PID (ppm)=0.0
							Headspace PID (ppm)=0.0 S11-SS04-0305-121311-Collected from 3-5 ft plus MS/MSD
5	5.0						Initial PID (ppm)=0.1 Headspace PID (ppm)=0.1
					7-10' - Silty fine sand (SM), strong brown, 7.5YR 5/8, moist, non plastic, soft		Headspace PID (ppm)=0.1
		5	MC-2				Initial PID (ppm)=0.1 Headspace PID (ppm)=0.1 S11-SS04-0810-121311-Collected from 8-10 ft
10	10.0						Initial PID (ppm)=0.0 Headspace PID (ppm)=0.1
					Bottom of Boring at 10.0 ft bgs on 12/13/11 08:40		

CH2MHILL

PROJECT NUMBER:	BORING NUMBER:
420671	S11-SS05 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Subsurface Inc.

DRILLING EQUIPMENT AND METHOD : DPT Power Probe, 9500 VTR

WATER LEVELS : --- START : 12/13/11 10:40 END : 12/13/11 11:05 LOGGER : O. Ogbebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
	0.0	5	MC-1		0-4.5' - Silt with clay (ML), strong brown 7.5YR 5/8, dry, non plastic, stiff		Initial PID (ppm)=0.0 S11-SS05-0002-121311-Collected from 0-2 ft bgs Initial PID (ppm)=0.0 Headspace PID (ppm)=0.1 S11-SS05-0305-121311-Collected from 3-5 ft
5	5.0	5	MC-2		4.5-6' - Silt with clay (ML), strong brown 7.5YR 5/8, moist, non plastic, firm 6-10' - Silty fine sand (SM), strong brown 7.5YR 5/8, moist but wet, non plastic, firm		Initial PID (ppm)=0.4 Headspace PID (ppm)=0.4 Initial PID (ppm)=0.0 S11-SS05-0810-121311-Collected from 8-10 ft Initial PID (ppm)=0.1 Headspace PID (ppm)=0.6
10	10.0				Bottom of Boring at 10.0 ft bgs on 12/13/11 10:40		

PROJECT NUMBER:	BORING NUMBER:
420671	S12-SS01 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Subsurface Inc.

DRILLING EQUIPMENT AND METHOD : DPT Power Probe, 9500 VTR

WATER LEVELS : --- START : 12/6/11 15:20 END : 12/6/11 15:40 LOGGER : O. Ogbebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
	0.0				0-0.8' - Concrete cored		Initial PID (ppm)=0.9 Headspace PID (ppm)=1.9
		5	MC-1		0.8-3.5' - Silt with some clay (ML), brown, dry, 10YR 5/3		Initial PID (ppm)=2.1 Headspace PID (ppm)=2.6 S12-SS01-0002-120611-Collected from 0-0.8" to 2ft bgs S12-SS01-0305-12/06/11-Collected from 3-5ft bgs Initial PID (ppm)=2.4 Headspace PID (ppm)=2.8
5	5.0				3.5-7' - Silt with some clay (ML), brown, dry, 10YR 5/3, wet from 3.5 to 7", non plastic, firm		Initial PID (ppm)=3.7 Headspace PID (ppm)=2.8
		5	MC-2		7-10' - Fine to coarse silty sand with some gravel (SW), moist, loose		S12-SS01-0810-120611-Collected from 8-10ft bgs Initial PID (ppm)=2.1 Headspace PID (ppm)=2.9
10	10.0				Bottom of Boring at 10.0 ft bgs on 12/6/11 15:20		

CH2MHILL

PROJECT NUMBER:	BORING NUMBER:	
420671	S12-SS02	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Subsurface Inc.

DRILLING EQUIPMENT AND METHOD : DPT Power Probe, 9500 VTR

WATER LEVELS : ▼ --- START : 12/6/11 14:30 END : 12/6/11 16:10 LOGGER : O. Ogbebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
	0.0				0-0.8' - Concrete cored		
		5	MC-1		0.8-2.5' - Silt with some clay and gravel (ML), reddish brown 10YR 5/4, dry, non plastic, firm, some muscovite particles		Initial PID (ppm)=2.1 Headspace PID (ppm)=3.2 S12-SS02 0002 020611-0-2 ft
5	5.0	5	MC-2		2.5-8' - Silt with some clay and gravel (ML), strong brown 5YR 5/18, wet, non plastic, firm, some muscovite particles		Initial PID (ppm)=2.8 Headspace PID (ppm)=4.0 S12-SS02 0305 120611-3-5 ft Initial PID (ppm)=3.1 Headspace PID (ppm)=5.3
10	10.0	5	MC-3		8-15' - Gravelly sand (SW), moist, fine, course sand, fine gravel, few silt, loose		Initial PID (ppm)=3.4 Headspace PID (ppm)=5.4 SS12-SS02 0810 120611-8-10 ft Initial PID (ppm)=2.7 Headspace PID (ppm)=7.7 Initial PID (ppm)=2.3 Headspace PID (ppm)=4.6
15	15.0				Bottom of Boring at 15.0 ft bgs on 12/6/11 14:30		Initial PID (ppm)=2.0 Headspace PID (ppm)=2.3

CH2MHILL

PROJECT NUMBER:	BORING NUMBER:
420671	S15-SS01 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Subsurface Inc.

DRILLING EQUIPMENT AND METHOD : DPT Power Probe, 9500 VTR

WATER LEVELS : ▼ --- START : 12/15/11 11:30 END : 12/15/11 11:55 LOGGER : O. Ogebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
0	0.0				0-0.2' - Topsoil, sand, silt (ML), dark brown 7.5YR 3/2, moist, some rootlets, loose		
					0.2-4.5' - Silt with some clay (ML), strong brown 7.5YR 5/8, dry, non plastic, stiff		Initial PID (ppm)=0.0 Headspace PID (ppm)=0.0 S15-SS01-0002-121511 and HGR-121511-FD05 collected from 0.3-2 ft
		5	MC-1				Initial PID (ppm)=0.1 Headspace PID (ppm)=0.8 S15-SS01-0305-121511 and HGR-121511-FD07-collected from 3-5 ft
5	5.0				4.5-10' - Silt with some clay and sand (ML), dark gray 7.5YR 4/1, with olive brown mottling 7.5YR 4/4, moist, non plastic, firm		Initial PID (ppm)=0.1 Headspace PID (ppm)=1.6
		5	MC-2				Initial PID (ppm)=0.2 Headspace PID (ppm)=1.3 S15-SS01-0810-121511-HGR and 121511-collected from 8-10 ft
10	10.0						Initial PID (ppm)=0.1 Headspace PID (ppm)=1.2
					Bottom of Boring at 10.0 ft bgs on 12/15/11 11:30		

PROJECT NUMBER:	BORING NUMBER:
420671	S15-SS02 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Subsurface Inc.

DRILLING EQUIPMENT AND METHOD : DPT Power Probe, 9500 VTR

WATER LEVELS : --- START : 12/15/11 12:10 END : 12/15/11 13:05 LOGGER : O. Ogebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
0	0.0	5	MC-1		0-0.2' - Topsoil, sand, silt, loose, dark brown and rootlets 0.2-6' - Silt with clay (ML), strong brown 7.5YR 5/8, dry, non plastic, stiff		Initial PID (ppm)=0.0 Headspace PID (ppm)=0.1 Initial PID (ppm)=2.1 Headspace PID (ppm)=0.1 Initial PID (ppm)=2.2 Headspace PID (ppm)=2.5
5	5.0	5	MC-2		6-15.5' - Silt with clay and little sand (ML), dark gray 7.5YR 4/1, with dark brown mottling, moist, non plastic, firm		Initial PID (ppm)=1.6 Headspace PID (ppm)=2.1 Initial PID (ppm)=1.8 Headspace PID (ppm)=2.4 Initial PID (ppm)=10.4
10	10.0	5	MC-3				Headspace PID (ppm)=17.8 Initial PID (ppm)=10.6 Headspace PID (ppm)=14.0
15	15.0	5	MC-4		15.5-23' - Silty fine sand (SM), brown 7.5YR 5/4, moist, non plastic, firm		Initial PID (ppm)=14.6 Headspace PID (ppm)=42.1 Initial PID (ppm)=28.4 Headspace PID (ppm)=44.7 Initial PID (ppm)=22.1 Headspace PID (ppm)=40.1
20	20.0	5	MC-5				Initial PID (ppm)=10.1 Headspace PID (ppm)=6.6 Initial PID (ppm)=2.4 Headspace PID (ppm)=1.8
25	25.0				23-25' - Silty fine sand (SM), brown 7.5YR 5/4, wet, non plastic, firm		Initial PID (ppm)=2.4 Headspace PID (ppm)=6.8 Initial PID (ppm)=2.4 Headspace PID (ppm)=2.1
30					Bottom of Boring at 25.0 ft bgs on 12/15/11 12:10		Initial PID (ppm)=10.6 Headspace PID (ppm)=14.1

PROJECT NUMBER:	BORING NUMBER:
420671	S15-SS03 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Subsurface Inc.

DRILLING EQUIPMENT AND METHOD : DPT Power Probe, 9500 VTR

WATER LEVELS : --- START : 12/15/11 11:00 END : 12/15/11 11:25 LOGGER : O. Ogebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
	0.0				0-0.3' - Asphalt		
		5	MC-1		0.3-4.5' - Gravelly sand (SW), very dark grayish brown 10YR 4/3, dry, loose		Initial PID (ppm)=0.0 Headspace PID (ppm)=0.0 S15-SS03-0002-121511 and HGR-121511-FD04-Collected from 0.25-2 ft Initial PID (ppm)=0.9 Headspace PID (ppm)=4.6 S15-SS03-0305-121511-Collected from 3-5 ft
5	5.0				4.5-6' - Gravelly sand (SW), strong brown 7.5YR 4/6, moist, loose		Initial PID (ppm)=6.8 Headspace PID (ppm)=20.1
		5	MC-2		6-15' - Silt with clay (ML), grayish brown 7.5YR 5/2, moist, non plastic, firm		Initial PID (ppm)=0.8 Headspace PID (ppm)=2.1 S15-SS03-0810-121511 and HGR-121511-FD05-Collected from 8-10 ft
10	10.0						Initial PID (ppm)=0.0 Headspace PID (ppm)=1.6 Initial PID (ppm)=0.0 Headspace PID (ppm)=1.8
		5	MC-3				Initial PID (ppm)=0.1 Headspace PID (ppm)=1.2 S15-SS03-1315-121511-Collected from 13-15 ft Initial PID (ppm)=0.4 Headspace PID (ppm)=1.4
15	15.0				Bottom of Boring at 15.0 ft bgs on 12/15/11 11:00		

CH2MHILL

PROJECT NUMBER:	BORING NUMBER:
420671	S15-SS04 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Subsurface Inc.

DRILLING EQUIPMENT AND METHOD : DPT Power Probe, 9500 VTR

WATER LEVELS : --- START : 12/15/11 08:50 END : 12/15/11 10:55 LOGGER : O. Ogebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
	0.0				0-1.25' - Compacted gravel and sand		
			Hand Auger		1.25-4.5' - Silt with some clay, strong brown 7.5YR 5/7, dry, non plastic, stiff		Initial PID (ppm)=0.9 Headspace PID (ppm)=0.9 S15-SS04-0002-121511 and HGR-121511-FD01-Collected from 0.5-2 ft Initial PID (ppm)=1.8 Headspace PID (ppm)=2.5
							Initial PID (ppm)=0.9 Headspace PID (ppm)=3.2 S15-SS04-0305-121511 and HGR-121511-FD02-Collected from 3-5 ft
5	5.0				4.5-10' - Silt with some clay, dark grayish brown 7.5YR 4/2, moist, non plastic, stiff		Initial PID (ppm)=3.6 Headspace PID (ppm)=5.4
			Hand Auger				Initial PID (ppm)=3.7 Headspace PID (ppm)=4.1 S15-SS04-0810-121511-and HGR-121511-FD03-Collected 8-10 ft
							Initial PID (ppm)=6.8 Headspace PID (ppm)=13.9
10	10.0				10-14' - No recovery		
			MC-1				
	14.0				Bottom of Boring at 14.0 ft bgs on 12/15/11 08:50		
15							

PROJECT NUMBER:	BORING NUMBER:
420671	S17-SS01 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Subsurface Inc.

DRILLING EQUIPMENT AND METHOD : DPT Power Probe, 9500 VTR

WATER LEVELS : --- START : 12/13/11 15:40 END : 12/13/11 16:20 LOGGER : O. Ogbebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
	0.0	5	MC-1		0-3' - Silt with clay (ML), strong brown 7.5YR 5/7, dry non plastic, stiff		Initial PID (ppm)=0.0 S17-SS01-0002-121311-Collected from 0.5-2 ft Initial PID (ppm)=0.0 Headspace PID (ppm)=0.8
5	5.0	5	MC-2		3-8' - Silt with clay (ML), dark greenish gray GLEY 4/10Y, wet, non plastic, firm Light brown oily liquids observed between 6-8 ft		S17-SS01-0305-121311-Collected from 3-5 ft Initial PID (ppm)=0.8 Headspace PID (ppm)=2.0 S17-SS01-0608-121311-Collected from 6-8 ft Initial PID (ppm)=3.5 Headspace PID (ppm)=3.9 S17-SS01-0810-121311-Collected from 8-10 ft
10	10.0	5	MC-3		8-15' - Gravely sand (SW), brown 7.5YR 5/3, moist, loose		Initial PID (ppm)=3.9 Headspace PID (ppm)=10.4 Initial PID (ppm)=5.8 Headspace PID (ppm)=6.8 Initial PID (ppm)=2.6 Headspace PID (ppm)=4.1 S17-SS01-1315-121311-Collected from 13-15 ft Initial PID (ppm)=0.9 Headspace PID (ppm)=1.2
15	15.0				Bottom of Boring at 15.0 ft bgs on 12/13/11 15:40		

CH2MHILL

PROJECT NUMBER:	BORING NUMBER:	
420671	S17-SS02	SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Subsurface Inc.

DRILLING EQUIPMENT AND METHOD : DPT Power Probe, 9500 VTR

WATER LEVELS : ▼ --- START : 12/14/11 14:15 END : 12/14/11 14:50 LOGGER : O. Ogbebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
0	0.0	5	MC-1		0-6' - Silt with clay (ML) strong brown 7.5YR 5/7, moist, non plastic, stiff		Initial PID (ppm)=0.0 Headspace PID (ppm)=0.1 S17-SS02-0002-121411-Collected from 0.25-2 ft
							Initial PID (ppm)=6.0 Headspace PID (ppm)=6.5 S17-SS02-0305-121411-Collected from 3-5 ft
5	5.0	5	MC-2		6-8' - Silty fine sand (SM), strong brown 7.5YR 5/7, wet, non plastic, soft		Initial PID (ppm)=10.8 Headspace PID (ppm)=38.1
					8-18' - Gravelly sand (SW), brown 7.5YR 4/3, moist, loose		Initial PID (ppm)=26 Headspace PID (ppm)=40 S17-SS02-0810-121411-Collected 8-10 ft
10	10.0	5	MC-3				Initial PID (ppm)=29 Headspace PID (ppm)=78
							Initial PID (ppm)=18.6 Headspace PID (ppm)=46.8
15	15.0	5	MC-4				Initial PID (ppm)=20.1 Headspace PID (ppm)=31.0 S17-SS02-1517-121411-Collected from 15-17 ft
							Initial PID (ppm)=10.6 Headspace PID (ppm)=20.8
					18-20' - Gravelly sand (SW), brown 7.5YR 4/3, wet, loose		
20	20.0						Headspace PID (ppm)=20.1 Initial PID (ppm)=18.9 Headspace PID (ppm)=5.0
					Bottom of Boring at 20.0 ft bgs on 12/14/11 14:15		

CH2MHILL

PROJECT NUMBER:	BORING NUMBER:
420671	S17-SS03 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Subsurface Inc.

DRILLING EQUIPMENT AND METHOD : DPT Power Probe, 9500 VTR

WATER LEVELS : ▼ --- START : 12/8/11 16:10 END : 12/8/11 16:35 LOGGER : O. Ogbebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
	0.0				0-6' - Silt with clay (ML), strong brown 7.5YR 5/8, moist, medium plastic, firm		
		5	MC-1				Initial PID (ppm)=0.1 Headspace PID (ppm)=0.3 S17-SS03-0002-120811-Collected from 0.5-2 ft
							Initial PID (ppm)=0.1 Headspace PID (ppm)=0.2 S17-SS03-0305-120811-Collected from 3-5 ft
5	5.0						Initial PID (ppm)=0.0 Headspace PID (ppm)=0.4
					6-10' - Silt with fine sand (ML), strong brown 7.5YR 5/8, wet, non plastic, soft		
		5	MC-2				Initial PID (ppm)=0.0 Headspace PID (ppm)=0.0 S17-SS03-0810-120811-Collected from 8-10 ft
							Initial PID (ppm)=0.1 Headspace PID (ppm)=0.3
10	10.0				Bottom of Boring at 10.0 ft bgs on 12/8/11 16:10		

CH2MHILL

PROJECT NUMBER:	BORING NUMBER:
420671	S19-SS01 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Subsurface Inc.

DRILLING EQUIPMENT AND METHOD : Hand Auger

WATER LEVELS : ▼ --- START : 12/13/11 13:50 END : 12/13/11 14:20 LOGGER : O. Ogbebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
	0.0				0-2.5' - Silt with some clay and fine gravels, strong brown 7.5YR 5/8, moist, low plasticity, firm		Initial PID (ppm)=0.0 Headspace PID (ppm)=0.0 S19-SS01-0002-121311-Collected from 0-2 ft
							Initial PID (ppm)=0.0
					2.5-9.5' - Silty fine sand (SM), strong brown 7.5YR 5/7, moist, non plastic, firm		Headspace PID (ppm)=0.9 S19-SS01-0305-121311-Collected 3-5 ft
							Initial PID (ppm)=0.0
5			Hand Auger				Headspace PID (ppm)=0.9
							Initial PID (ppm)=0.0 Headspace PID (ppm)=1.0
							Initial PID (ppm)=0.8 Headspace PID (ppm)=2.1 S19-SS01-0810-121311-8-10 ft
					9.5-10' - Silty fine sand (SM), strong brown 7.5YR 5/7, wet, non plastic, soft		Headspace PID (ppm)=0.6
10	10.0				Bottom of Boring at 10.0 ft bgs on 12/13/11 13:50		

CH2MHILL

PROJECT NUMBER:	BORING NUMBER:
420671	S19-SS02 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Subsurface Inc.

DRILLING EQUIPMENT AND METHOD : DPT Power Probe, 9500 VTR

WATER LEVELS : ▼ --- START : 12/13/11 14:45 END : 12/13/11 15:20 LOGGER : O. Ogebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
0	0.0	5	MC-1		0-3' - Silty fine sand (SM), brown 7.5YR 5/4, moist, non plastic, soft		Initial PID (ppm)=0.0 Headspace PID (ppm)=0.0 S19-SS02-0002-121311-Collected from 0.5-2 ft
5	5.0	5	MC-2		3-20' - Gravelly sand (SW), brown 7.5YR 5/3, moist, loose		Initial PID (ppm)=1.0 Headspace PID (ppm)=0.6 S19-SS02-0305-121311-Collected from 3-5 ft Initial PID (ppm)=1.2 Headspace PID (ppm)=1.7 Headspace PID (ppm)=10.1
10	10.0	5	MC-3				Headspace PID (ppm)=9.8 S19-SS02-0810-121311-Collected from 8-10 ft Initial PID (ppm)=12.6 Headspace PID (ppm)=19.6 Initial PID (ppm)=10.4 Headspace PID (ppm)=8.9
15	15.0	5	MC-4				Initial PID (ppm)=10.1 Headspace PID (ppm)=11.6 Initial PID (ppm)=6.8 Headspace PID (ppm)=10.9 S19-SS02-1618-121311-Collected from 16-18 ft
20	20.0				Bottom of Boring at 20.0 ft bgs on 12/13/11 14:45		Initial PID (ppm)=6.1 Headspace PID (ppm)=6.4 Initial PID (ppm)=0.6 Headspace PID (ppm)=1.2
25							

PROJECT NUMBER:	BORING NUMBER:
420671	S24-SS01 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Subsurface Inc.

DRILLING EQUIPMENT AND METHOD : DPT Power Probe, 9500 VTR

WATER LEVELS : --- START : 12/14/2011 END : 12/14/2011 LOGGER : O. Ogebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
0.0					0-0.5' - Asphalt		
		5	MC-1		0.5-6.75' - Silt with clay (ML), strong brown 7.5YR 5/7, dry, non plastic, firm		Initial PID (ppm)=0.0 Headspace PID (ppm)=0.0 S24-SS01-0002-121411-Collected from 0.5-2 ft Initial PID (ppm)=1.6 Headspace PID (ppm)=1.0 S24-SS01-0305-121411-Collected from 3-5 ft
5 5.0							
		5	MC-2		6.75-8' - Silty fine sand (SM), brown 7.5YR 5/4, wet, non plastic, firm		Initial PID (ppm)=2.4 Headspace PID (ppm)=4.8 Initial PID (ppm)=1.6
					8-24' - Gravelly sand (SW), brown 7.5YR 4/3, wet, loose		Headspace PID (ppm)=7.4 S24-SS01-0810-121411-Collected from 8-10 ft
10 10.0							
		5	MC-3				Initial PID (ppm)=4.6 Headspace PID (ppm)=10.8
							Initial PID (ppm)=4.8 Headspace PID (ppm)=20.8
15 15.0							
		5	MC-4				Initial PID (ppm)=10.6 Headspace PID (ppm)=34.6 Initial PID (ppm)=28.4 Headspace PID (ppm)=42.6
20 20.0							
		5	MC-5				Initial PID (ppm)=40.3 Headspace PID (ppm)=64.5 S24-SS01-2123-121411-Collected from 21-23 ft Initial PID (ppm)=43 Headspace PID (ppm)=68.0
					24-25' - Gravelly sand (SW), brown 7.5YR 4/3, wet, loose		Initial PID (ppm)=42 Headspace PID (ppm)=61.6 Headspace PID (ppm)=224
25 25.0							
					Bottom of Boring at 25.0 ft bgs on 12/14/2011		

PROJECT NUMBER:	BORING NUMBER:
420671	S24-SS02 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Subsurface Inc.

DRILLING EQUIPMENT AND METHOD : DPT Power Probe, 9500 VTR

WATER LEVELS : --- START : 12/7/2011 END : 12/7/11 09:40 LOGGER : O. Ogebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
	0.0				0-0.2' - Asphalt		
		5	MC-1		0.2-9.75' - Silt with some clay and sand (ML), gray 7.5YR 5/1 with strong brown 7.5YR 5/1, mottling, dry, non plastic, (very friable), firm, very strong moth ball like odor from 7 ft bgs		Initial PID (ppm)=0.2 Headspace PID (ppm)=0.0 S24-SS02-0002-120711-Collected from 0.2-2 ft Initial PID (ppm)=0.1 Headspace PID (ppm)=0.2 S24-SS02-0305-120711-Collected 3-5 ft Initial PID (ppm)=0.4
5	5.0						
		5	MC-2				Headspace PID (ppm)=0.6 Initial PID (ppm)=20 Headspace PID (ppm)=109.6 S24-SS02-0810-120711-Collected from 8-10 ft
10	10.0				9.75-14' - Silt with some clay and sand (ML), gray 7.5YR 5/1 with strong brown 7.5YR 5/1, mottling, wet, medium plastic, soft		Initial PID (ppm)=3008 Headspace PID (ppm)=3800
		5	MC-3				Initial PID (ppm)=340 Headspace PID (ppm)=3260 S24-SS02-1315-120711-Collected 13-15 ft
15	15.0				14-24' - Gravelly sand, fine silt (SW), brown 7.5YR 4/3, moist, (gravel particles are subangular to rounded), loose, slight moth ball like odor		Initial PID (ppm)=208 Headspace PID (ppm)=3648
		5	MC-4				Initial PID (ppm)=20.4 Headspace PID (ppm)=26
20	20.0						Initial PID (ppm)=1.8 Headspace PID (ppm)=20.6
		5	MC-5				Initial PID (ppm)=1.8 Headspace PID (ppm)=4.9
25	25.0				24-25' - Gravelly sand, fine silt (SW), brown 7.5YR 4/3, wet, (gravel particles are subangular to rounded), loose, slight moth ball like odor		Initial PID (ppm)=2.3 Headspace PID (ppm)=5.8
					Bottom of Boring at 25.0 ft bgs on 12/7/2011		

PROJECT NUMBER:	BORING NUMBER:
420671	S24-SS03 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Subsurface Inc.

DRILLING EQUIPMENT AND METHOD : DPT Power Probe, 9500 VTR

WATER LEVELS : --- START : 12/7/11 16:10 END : 12/7/11 16:40 LOGGER : O. Ogebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
	0.0				0-1' - Sand with gravel (SW), some brick, charcoal, concrete, brown 7.5YR 4/3, moist, loose		
		5	MC-1		1-10' - Silt with some clay (ML), strong brown 7.5YR 5/7, moist, non plastic, firm		Initial PID (ppm)=1.0 Headspace PID (ppm)=0 S24-SS03-0002-120711-Collected from 0.5-2 ft bgs
5	5.0						Initial PID (ppm)=1.0 Headspace PID (ppm)=2.6 S24-SS03-0305-120711-Collected from 3-5 ft bgs
		5	MC-2				Initial PID (ppm)=1.0 Headspace PID (ppm)=1.0 S24-SS03-0810-120711-Collected from 8-10 ft bgs
10	10.0				Bottom of Boring at 10.0 ft bgs on 12/7/11 16:10		

CH2MHILL

PROJECT NUMBER:	BORING NUMBER:
420671	S24-SS04 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Subsurface Inc.

DRILLING EQUIPMENT AND METHOD : DPT Power Probe, 9500 VTR

WATER LEVELS : --- START : 12/12/11 10:50 END : 12/12/11 11:35 LOGGER : O. Ogebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
0	0.0	5	MC-1		0-14.5' - Silt with some clay, few gravel, sand (ML), brown 7.5YR 4/4 with gray moltting 7.5YR 5/11, moist, low plasticity, slight odor from 7.5 ft		Initial PID (ppm)=0.0 Headspace PID (ppm)=0.0 S24-SS04-0002-120711-Collected from 0.6-2 ft
							Initial PID (ppm)=0.8 Headspace PID (ppm)=0.4 S24-SS04-0305-120711-Collected from 3-5 ft
5	5.0	5	MC-2				Initial PID (ppm)=0.4 Headspace PID (ppm)=0.9
							Initial PID (ppm)=1.2 Headspace PID (ppm)=3.8 S24-SS04-0810-120711-Collected from 8-10 ft
10	10.0	5	MC-3				Initial PID (ppm)=10.6 Headspace PID (ppm)=25.8
							Initial PID (ppm)=8.6 Headspace PID (ppm)=20.1
15	15.0	5	MC-4		14.5-18.5' - Silt with some clay, few gravel, sand (ML), brown 7.5YR 4/4 with gray moltting 7.5YR 5/11, wet, medium plasticity, soft, slight odor from 7.5 ft		Initial PID (ppm)=4.8 Headspace PID (ppm)=5.9
					18.5-20' - Gravelly sand (SW), dark brown 7.5YR 3/4, wet, sand is fine to coarse, some silt, loose, gravel is subanguler to subrounded		Initial PID (ppm)=1.6 Headspace PID (ppm)=8.6
20	20.0						Headspace PID (ppm)=2.3
					Bottom of Boring at 20.0 ft bgs on 12/12/11 10:50		

CH2MHILL

PROJECT NUMBER:	BORING NUMBER:
420671	S24-SS05 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Subsurface Inc.

DRILLING EQUIPMENT AND METHOD : DPT Power Probe, 9500 VTR

WATER LEVELS : --- START : 12/8/11 16:45 END : 12/8/11 17:05 LOGGER : O. Ogebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
	0.0				0-0.5' - Top soil (SW), few gravel, rootlet, dark brown 7.5YR 4/3, moist, non plastic, loose		
					0.5-6' - Silt with clay (ML), strong brown 7.5YR 5/8, moist, non plastic, firm		Initial PID (ppm)=0.0 Headspace PID (ppm)=0.0 S24-SS05-0002-120811-Collected from 0.5-2 ft
		5	MC-2				Initial PID (ppm)=0.2 Headspace PID (ppm)=0.3 S24-SS05-0305-120811-Collected from 3-5 ft
5	5.0						Initial PID (ppm)=0.1 Headspace PID (ppm)=0.4
					6-10' - Silt, some fine sand (ML), brown 7.5YR 5/5, wet, non plastic, soft		
		5	MC-2				Initial PID (ppm)=0.1 Headspace PID (ppm)=0.1
							Initial PID (ppm)=0.1 Headspace PID (ppm)=0.1 S24-SS05-0810-120811-Collected from 8-10 ft
10	10.0						
					Bottom of Boring at 10.0 ft bgs on 12/8/11 16:45		Headspace PID (ppm)=0.2

PROJECT NUMBER:	BORING NUMBER:
420671	S24-SS06 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Subsurface Inc.

DRILLING EQUIPMENT AND METHOD : DPT Power Probe, 9500 VTR

WATER LEVELS : --- START : 12/9/11 08:35 END : 12/9/11 09:00 LOGGER : O. Ogebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
	0.0				0-5.5' - Silt with some clay, few gravel, some sand (ML), brown 7.5YR 5/4, moist, low plasticity, firm		
							Initial PID (ppm)=0.0 Headspace PID (ppm)=0.0 S24-SS06-0002-120911-Collected from 0.5-2 ft
		5	MC-1				
							Initial PID (ppm)=0.0 Headspace PID (ppm)=0.1 S24-SS06-0305-120911-Collected 3-5 ft
5	5.0						
							Initial PID (ppm)=0.0 Headspace PID (ppm)=0.1
					5.5-8' - Silt with some clay, few gravel, some sand (ML), brown 7.5YR 5/4, wet, medium plasticity, firm		
							Initial PID (ppm)=0.0
		5	MC-2				
					8-10' - Silt (ML), with some fine sand, strong brown 7.5YR 5/8, wet, non plastic, soft		Headspace PID (ppm)=0.0 S24-SS06-0810-120911-Collected from 8-10 ft
							Initial PID (ppm)=0.2 Headspace PID (ppm)=0.1
10	10.0						
					Bottom of Boring at 10.0 ft bgs on 12/9/11 08:35		

PROJECT NUMBER:	BORING NUMBER:
420671	S24-SS07 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Subsurface Inc.

DRILLING EQUIPMENT AND METHOD : DPT Power Probe, 9500 VTR

WATER LEVELS : --- START : 12/9/11 09:10 END : 12/9/11 09:35 LOGGER : O. Ogebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
	0.0				0-7.25' - Silt with clay, few gravels, sand (ML), very strong brown 7.5YR 5/7, dry, non plastic, hard		
							Initial PID (ppm)=0.0 Headspace PID (ppm)0.0 S24-SS07-0002-120911-Collected from 0.5-2 ft
		5	MC-1				Initial PID (ppm)=0.0 Headspace PID (ppm)=0.1 S24-SS07-0305-120911-Collected 3-5 ft
5	5.0						
							Initial PID (ppm)=2.1 Headspace PID (ppm)=2.1
					7.25-10' - Silt with fine sand and little clay (ML), strong brown 7.5YR 5/7, wet, non plastic, soft		Initial PID (ppm)=0.8 Headspace PID (ppm)=2.1 S24-SS07-0810-120911-Collected from 8-10 ft
		5	MC-2				
							Initial PID (ppm)=0.0 Headspace PID (ppm)=1.1
10	10.0						
					Bottom of Boring at 10.0 ft bgs on 12/9/11 09:10		

PROJECT NUMBER:	BORING NUMBER:
420671	S24-SS08 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Subsurface Inc.

DRILLING EQUIPMENT AND METHOD : DPT Power Probe, 9500 VTR

WATER LEVELS : --- START : 12/9/11 09:50 END : 12/9/11 10:30 LOGGER : O. Ogebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
0	0.0	5	MC-1		0-6.5' - Silt with some clay, trace sand, trace gravel (ML), brown 7.5YR 5/5, moist, medium plastic, firm		Initial PID (ppm)=0.0 Headspace PID (ppm)=1.2 S24-SS08-0002-120911-Collected from 0.5-2 ft
							Initial PID (ppm)=0.0 Headspace PID (ppm)=0.6 S24-SS08-0305-120911-Collected from 3-5 ft
5	5.0	5	MC-2				Initial PID (ppm)=0.0 Headspace PID (ppm)=1.9
					6.5-11' - Silt with some fine sand, few gravel (ML), strong brown 7.5YR 5/8, wet, non plastic, soft		Initial PID (ppm)=0.3 Headspace PID (ppm)=1.8 S24-SS08-0810-120911-Collected from 8-10 ft
10	10.0	5	MC-3		11-20' - Gravelly sand (SW), little silt, brown 7.5YR 4/2, moist, loose		Initial PID (ppm)=12 Headspace PID (ppm)=3.5
							Initial PID (ppm)=18 Headspace PID (ppm)=20 S24-SS08-1315-120911-Collected from 13-15 ft
15	15.0	5	MC-4				Initial PID (ppm)=54 Headspace PID (ppm)=74
							Initial PID (ppm)=0.2 Headspace PID (ppm)=0.6
20	20.0						Initial PID (ppm)=0.9 Headspace PID (ppm)=3.5
					Bottom of Boring at 20.0 ft bgs on 12/9/11 09:50		

PROJECT NUMBER:	BORING NUMBER:
420671	S25-SS01 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Subsurface Inc.

DRILLING EQUIPMENT AND METHOD : DPT Power Probe, 9500 VTR

WATER LEVELS : --- START : 12/7/11 15:25 END : 12/7/11 16:05 LOGGER : O. Ogebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
	0.0				0-2' - Gravelly sand (SW), some woody remains, charcoal, bricks, brown 7.5YR 4/3, dry, loose		Initial PID (ppm)=0.0 Headspace PID (ppm)=0.0 S25-SS01-0002-120711-Collected 0.5-2 ft
		5	MC-1		2-10' - Silt with clay (ML), strong brown 7.5YR 5/8, moist, low plastic, firm		Initial PID (ppm)=1.0 Headspace PID (ppm)=0.6 S25-SS01-0305-120711-Collected 3-5 ft
5	5.0						Initial PID (ppm)=7.6 Headspace PID (ppm)=5.2
		5	MC-2				Initial PID (ppm)=1.4 Headspace PID (ppm)=2.1 S25-SS01-0810-120711-Collected from 8-10 ft
10	10.0						Initial PID (ppm)=1.0 Headspace PID (ppm)=2.8
					Bottom of Boring at 10.0 ft bgs on 12/7/11 15:25		

CH2MHILL

PROJECT NUMBER:	BORING NUMBER:
420671	S25-SS02 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Subsurface Inc.

DRILLING EQUIPMENT AND METHOD : DPT Power Probe, 9500 VTR

WATER LEVELS : --- START : 12/7/11 14:15 END : 12/7/11 14:30 LOGGER : O. Ogebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
	0.0				0-2' - Gravelly sand (SW), little charcoal, bricks, silt, brown 7.5YR 4/3, moist, loose		Initial PID (ppm)=0.0 Headspace PID (ppm)=0.1 S25-SS02-0002-120711-Collected 0.6-2 ft
		5	MC-1		2-10' - Silt with some clay (ML), strong brown 7.5YR 5/8, moist to 6 ft, wet 6-10 ft, medium plastic, firm		Initial PID (ppm)=0.4 Headspace PID (ppm)=1.6 S25-SS02-0305-120711-Collected form 3-5 ft
5	5.0						Initial PID (ppm)=0.1 Headspace PID (ppm)=2.5
		5	MC-2				Initial PID (ppm)=0.3 Headspace PID (ppm)=1.2 S25-SS02-0810-120711-Collected from 8-10 ft
10	10.0						Initial PID (ppm)=0.8 Headspace PID (ppm)=1.6
					Bottom of Boring at 10.0 ft bgs on 12/7/11 14:15		

PROJECT NUMBER:	BORING NUMBER:
420671	S25-SS03 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Subsurface Inc.

DRILLING EQUIPMENT AND METHOD : DPT Power Probe, 9500 VTR

WATER LEVELS : --- START : 12/7/11 14:45 END : 12/7/11 15:10 LOGGER : O. Ogebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
	0.0				0-2' - Gravelly sand some crushed concrete, charcoal, bricks, silt (SW), brown 7.5YR 4/3, moist, loose		Initial PID (ppm)=0.0 Headspace PID (ppm)=0.0 S25-SS03-0002-120711-Collected 0.5-2 ft
		5	MC-1		2-8' - Silt with some clay (ML), strong brown 7.5YR 5/8, moist, slight moth ball like odor		Initial PID (ppm)=2.8 Headspace PID (ppm)=0.6 S25-SS03-0305-120711-Collected 3-5 ft
5	5.0						Initial PID (ppm)=1.2 Headspace PID (ppm)=2.1
		5	MC-2				Initial PID (ppm)=1.4 Headspace PID (ppm)=4.6 S25-SS03-0305-120711-Collected from 8-10 ft
10	10.0				8-15' - Silt with some clay (ML), strong brown 7.5YR 5/8, wet, medium plastic, soft, slight moth ball like odor		Initial PID (ppm)=20.4 Headspace PID (ppm)=36.9
		5	MC-3				Initial PID (ppm)=10 Headspace PID (ppm)=6.8
15	15.0						Initial PID (ppm)=1.6 Headspace PID (ppm)=2.0
					Bottom of Boring at 15.0 ft bgs on 12/7/11 14:45		

PROJECT NUMBER:	BORING NUMBER:
420671	S25-SS04 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Subsurface Inc.

DRILLING EQUIPMENT AND METHOD : DPT Power Probe, 9500 VTR

WATER LEVELS : ▼ --- START : 12/7/11 11:50 END : 12/7/11 12:20 LOGGER : O. Ogebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
	0.0				0-3.5' - Sand (SW), with some gravel, silt, brown 7.5YR 4/3, fine to coarse sand, some pieces of red brick, loose		
		5	MC-1				Initial PID (ppm)=0.0 Headspace PID (ppm)=0.8 S25-SS04-0002-120711-Collected 0.6-2 ft
							Initial PID (ppm)=0.1 Headspace PID (ppm)=0.2 S25-SS04-0305-120711-Collected from 3-5 ft
5	5.0				3.5-10' - Silt (ML), with some clay, trace gravel and sand, strong brown 7.5YR 5/8, moist, non plastic, firm		
		5	MC-2				Initial PID (ppm)=1.4 Headspace PID (ppm)=3.5
							Initial PID (ppm)=0.6 Headspace PID (ppm)=2.0 S25-SS04-0810-120711-Collected from 8-10 ft
10	10.0						Initial PID (ppm)=0.6 Headspace PID (ppm)=1.1
					Bottom of Boring at 10.0 ft bgs on 12/7/11 11:50		

PROJECT NUMBER:	BORING NUMBER:
420671	S29-SS01 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Subsurface Inc.

DRILLING EQUIPMENT AND METHOD : DPT Power Probe, 9500 VTR

WATER LEVELS : --- START : 12/8/11 15:25 END : 12/8/11 16:00 LOGGER : O. Ogebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
	0.0				0-3' - Top soil (Sand (SW), some rootlets, brown 7.5YR 4/3, moist, non plastic, loose		
		5	MC-1				Initial PID (ppm)=0.0 Headspace PID (ppm)=0.1 S29-SS01-0002-120811-Collected from 0.5-2 ft
					3-10' - Silt with some clay (ML), strong brown 7.5YR 5/8, moist, medium plastic, firm		Initial PID (ppm)=0.0 Headspace PID (ppm)=0.0 S29-SS01-0305-120811-Collected from 3-5 ft
5	5.0						
		5	MC-2				Initial PID (ppm)=0.2 Headspace PID (ppm)=0.1
							Initial PID (ppm)=0.0 Headspace PID (ppm)=0.0 S29-SS01-0810-120811-Collected from 8-10 ft
10	10.0						Initial PID (ppm)=0.0 Headspace PID (ppm)=0.1
					Bottom of Boring at 10.0 ft bgs on 12/8/11 15:25		

PROJECT NUMBER:	BORING NUMBER:
420671	S29-SS02 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Subsurface Inc.

DRILLING EQUIPMENT AND METHOD : DPT Power Probe, 9500 VTR

WATER LEVELS : --- START : 12/8/11 14:50 END : 12/8/11 15:22 LOGGER : O. Ogebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
	0.0				0-0.5' - Top soil, sand (SW), some silt, few gravel rootlets, dark brown 7.5YR 3/2, moist, non plastic, loose		
					0.5-10' - Silt with clay (ML), few sand, strong brown 7.5YR 5/8, moist, medium plastic, firm		Initial PID (ppm)=0.0 Headspace PID (ppm)=0.1 S29-SS02-0002-120811-Collected from 0.5-2 ft
		5	MC-1				Initial PID (ppm)=0.0 Headspace PID (ppm)=0.0 S29-SS02-0305-120811-Collected from 3-5 ft
5	5.0						Initial PID (ppm)=0.0 Headspace PID (ppm)=0.2
		5	MC-2				Initial PID (ppm)=0.0 Headspace PID (ppm)=0.0 S29-SS02-0810-120811-Collected 8-10 ft
10	10.0						Initial PID (ppm)=0.0 Headspace PID (ppm)=0.1
					Bottom of Boring at 10.0 ft bgs on 12/8/11 14:50		

PROJECT NUMBER:	BORING NUMBER:
420671	AOD-SS01 SHEET 1 OF 1

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Subsurface Inc.

DRILLING EQUIPMENT AND METHOD : DPT Power Probe, 9500 VTR

WATER LEVELS : --- START : 12/6/11 11:05 END : 12/6/11 11:10 LOGGER : O. Ogbebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
	0.0	2	MC-1		0-2' - Sand (SP), brown, 7.5YR 5/2, dry, fine to medium grain, soft, loose, appears to be FILL		Initial PID (ppm)=0.0 Headspace PID (ppm)=0.6
	2.0						
5	5.0	3	MC-2		5-7' - Sand (SP), brown, 7.5YR 5/2, dry, fine to medium grain, soft, loose, 0-2 FILL		Initial PID (ppm)=0.0 Headspace PID (ppm)=1.0
	7.0						
10	10.0	2	MC-3		10-12' - Sand (SP), brown, 7.5YR 5/2, dry, fine to medium grain, soft, loose, 5-7 concrete in probe shoe		Initial PID (ppm)=0.1 Headspace PID (ppm)=0.4
	12.0						Initial PID (ppm)=0.4 Headspace PID (ppm)=0.1
15					Bottom of Boring at 15.0 ft bgs on 12/6/11 11:05		

CH2MHILL

PROJECT NUMBER:	BORING NUMBER:	
420671	AOD-SS02	SHEET 1 OF 2

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Subsurface Inc.

DRILLING EQUIPMENT AND METHOD : DPT Power Probe, 9500 VTR

WATER LEVELS : ▼ --- START : 12/14/11 09:25 END : 12/14/11 09:50 LOGGER : O. Ogbebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
0	0.0				0-0.25' - Concrete		
		5	MC-1		0.25-6' - Clay with some silt (CL), dark grayish brown 7.5YR 4/2, wet, medium plastic, soft		Initial PID (ppm)=0.0 Headspace PID (ppm)=0.0 AOD-SS02-0002-121411-Collected from 0.25-3 ft Initial PID (ppm)=1.2 Headspace PID (ppm)=0.8 AOD-SS02-0305-121411-Colleced from 3-5 ft
5	5.0						Initial PID (ppm)=1.8 Headspace PID (ppm)=4.5
		5	MC-2		6-8' - Silt with some clay (ML), strong brown 7.5YR 5/7, dry, non plastic, stiff		
					8-12' - Silty fine sand (SM), dark brown 7.5YR 4/3, moist, non plastic, firm		Initial PID (ppm)=2.0 Headspace PID (ppm)=2.1 AOD-SS02-0810-121411-Collected from 8-10 ft
10	10.0						Initial PID (ppm)=0.9 Headspace PID (ppm)=2.1
		5	MC-3		12-15' - Gravelly sand (SW), brown 7.5YR 4/3, moist, loose		Initial PID (ppm)=0.1 Headspace PID (ppm)=0.9 AOD-SS02-1315-121411-Collected from 13-15 ft
15	15.0						Headspace PID (ppm)=0.1
					Bottom of Boring at 15.0 ft bgs on 12/14/11 09:25		

PROJECT NUMBER:	BORING NUMBER:
420671	AOD-SS02 SHEET 2 OF 2

SOIL BORING LOG

PROJECT : Dow Hanging Rock Phase I RFI Investigation, Ironton, Ohio LOCATION : Ironton, Ohio

ELEVATION : DRILLING CONTRACTOR : Subsurface Inc.

DRILLING EQUIPMENT AND METHOD : DPT Power Probe, 9500 VTR

WATER LEVELS : ▼ --- START : 12/14/11 09:25 END : 12/14/11 09:50 LOGGER : O. Ogbebor

DEPTH BELOW EXISTING GRADE ()	INTERVAL ()	RECOVERY (ft)	#TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	SYMBOLIC LOG	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
							Initial PID (ppm)=0.1 Headspace PID (ppm)=1.2
20							
25							
30							

PROJECT NUMBER	WELL NUMBER	
420671.01.FI	MW - 01	SHEET 1 OF 1

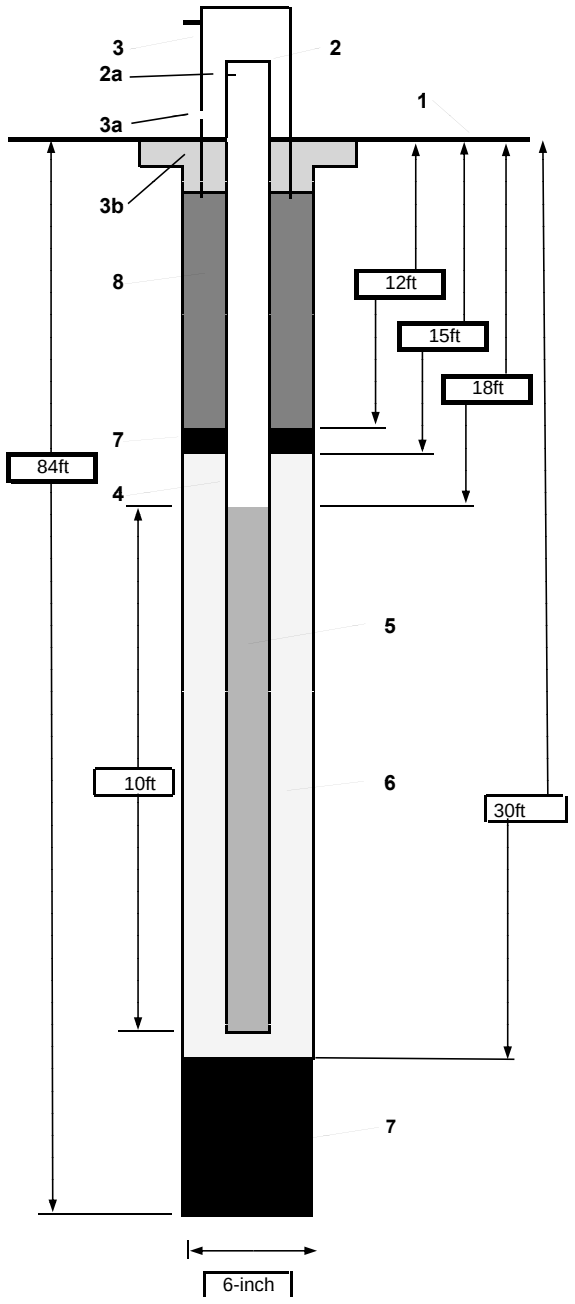
WELL COMPLETION DIAGRAM

PROJECT : Dow Hanging Rock Phase 1 RFI Investigation LOCATION : Hanging Rock Ohio

DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT USED : Spider Sonic Rig

WATER LEVELS : 23.02 ft bgs START : 1/4/2012 13:15 END : 1/5/12 15:40 LOGGER : O. Ogbebor/DAY



1- Ground elevation at well: NA

2- Top of casing elevation: NA
a) vent hole?

3- Wellhead protection cover type: 4-inch Galvanized Steel Casing
a) weep hole?: Yes
b) concrete pad dimensions: 2ft x 2ft

4- Dia./type of well casing: 2-inch PVC (Schedule 40)

5- Type/slot size of screen: 2-inch PVC, slot 10

6- Type screen filter: Sand (Global #5)
a) Quantity used: 5 bags

7- Type of seal: Bentonite Seal
a) Quantity used: 10 bag

8- Grout
a) Grout mix used: Portland and benseal
b) Method of placement: Gravity

Development method: Surge and Pump

Development time: 52 mins

Estimated purge volume: 105 gallons

Comments

PROJECT NUMBER	WELL NUMBER	
420671.01.FI	MW - 02	SHEET 1 OF 1

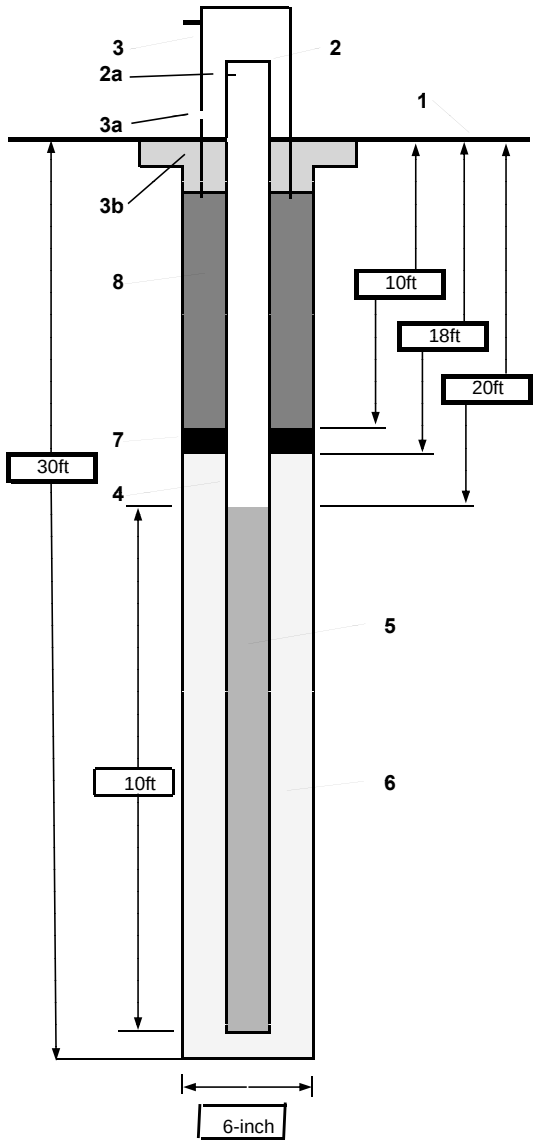
WELL COMPLETION DIAGRAM

PROJECT : Dow Hanging Rock Phase 1 RFI Investigation LOCATION : Hanging Rock Ohio

DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT USED : Spider Sonic Rig

WATER LEVELS : 24.00 ft bgs START : 1/5/2012 17:05 END : 1/6/12 11:20 LOGGER : O. Ogbebor/DAY



1- Ground elevation at well: NA

2- Top of casing elevation: NA
a) vent hole?

3- Wellhead protection cover type: 4-inch Galvanized Steel Casing
a) weep hole?: No
b) concrete pad dimensions: 2ft x 2ft

4- Dia./type of well casing: 2-inch PVC (Schedule 40)

5- Type/slot size of screen: 2-inch PVC, slot 10

6- Type screen filter: Sand (Global #5)
a) Quantity used: 5 bags

7- Type of seal: Bentonite Seal
a) Quantity used: 0.5 bags

8- Grout
a) Grout mix used: Portland and benseal
b) Method of placement: Gravity

Development method: Surge and Pump

Development time: 35 mins

Estimated purge volume: 70 gallons

Comments

PROJECT NUMBER	WELL NUMBER	
420671.01.FI	MW - 03	SHEET 1 OF 1

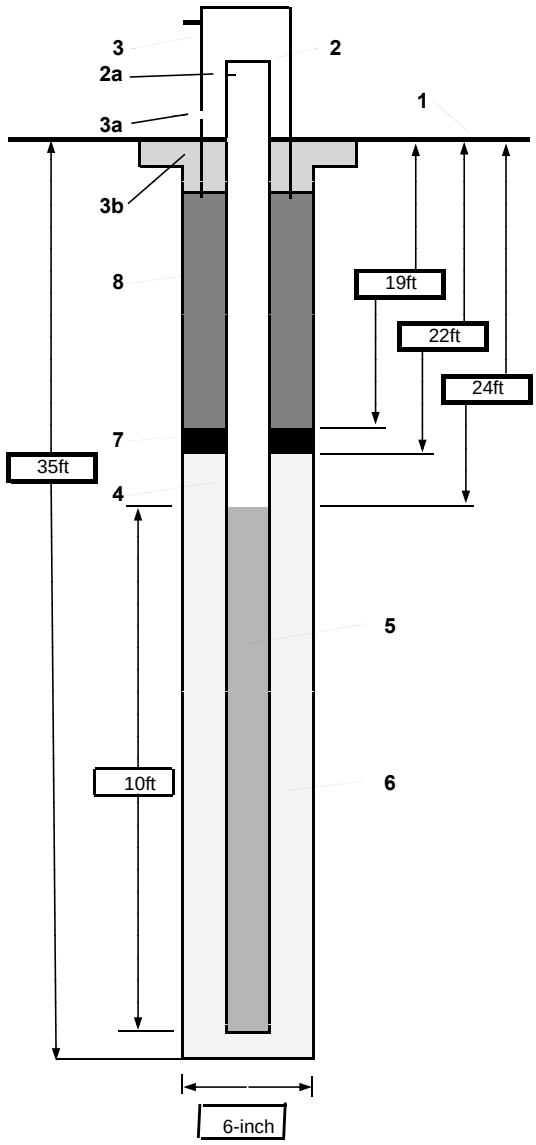
WELL COMPLETION DIAGRAM

PROJECT : Dow Hanging Rock Phase 1 RFI Investigation LOCATION : Hanging Rock Ohio

DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT USED : Spider Sonic Rig

WATER LEVELS : 25.60 ft bgs START : 1/6/2012 15:00 END : 1/6/12 18:25 LOGGER : O. Ogbebor/DAY



1- Ground elevation at well: NA

2- Top of casing elevation: NA
a) vent hole?

3- Wellhead protection cover type: 4-inch Galvanized Steel Casing
a) weep hole?: No
b) concrete pad dimensions: 2ft x 2ft

4- Dia./type of well casing: 2-inch PVC (Schedule 40)

5- Type/slot size of screen: 2-inch PVC, slot 10

6- Type screen filter: Sand (Global #5)
a) Quantity used: 5 bags

7- Type of seal: Bentonite Seal
a) Quantity used: 0.5 bags

8- Grout
a) Grout mix used: Portland and benseal
b) Method of placement: Gravity

Development method: Surge and Pump

Development time: 35 mins

Estimated purge volume: 70 gallons

Comments

PROJECT NUMBER	WELL NUMBER	
420671.01.FI	MW - 04	SHEET 1 OF 1

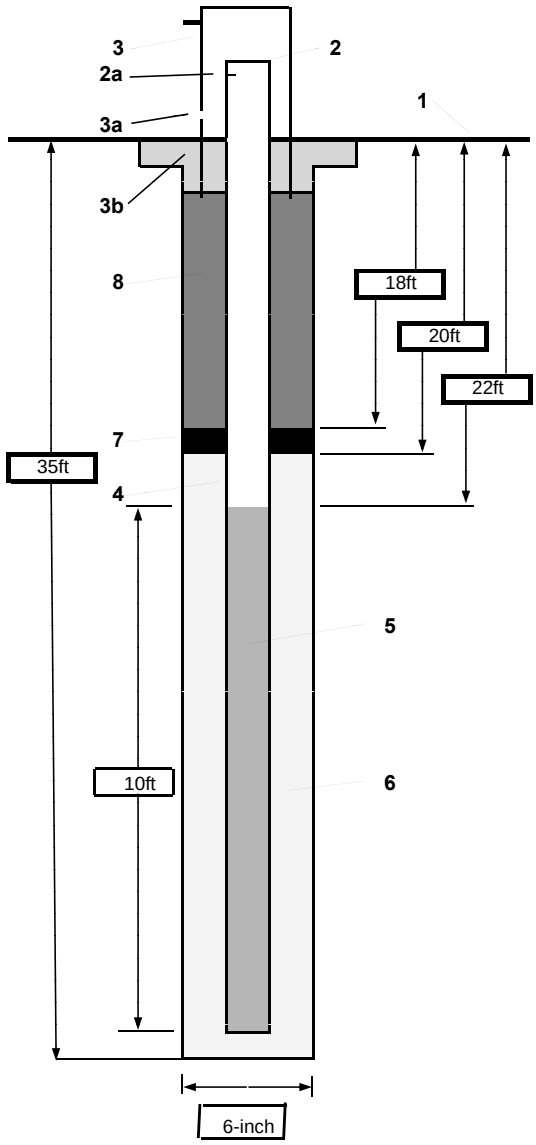
WELL COMPLETION DIAGRAM

PROJECT : Dow Hanging Rock Phase 1 RFI Investigation LOCATION : Hanging Rock Ohio

DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT USED : Spider Sonic Rig

WATER LEVELS : 22.01 ft bgs START : 1/10/2012 14:15 END : 1/10/12 17:50 LOGGER : O. Ogbebor/DAY



1- Ground elevation at well: NA

2- Top of casing elevation: NA
a) vent hole?

3- Wellhead protection cover type: 4-inch Galvanized Steel Casing
a) weep hole?: No
b) concrete pad dimensions: 2ft x 2ft

4- Dia./type of well casing: 2-inch PVC (Schedule 40)

5- Type/slot size of screen: 2-inch PVC, slot 10

6- Type screen filter: Sand (Global #5)
a) Quantity used: 5 bags

7- Type of seal: Bentonite Seal
a) Quantity used: 0.5 bags

8- Grout
a) Grout mix used: Portland and benseal
b) Method of placement: Gravity

Development method: Surge and Pump

Development time: 75 mins

Estimated purge volume: 150 gallons

Comments

PROJECT NUMBER	WELL NUMBER	
420671.01.FI	MW-05	SHEET 1 OF 1

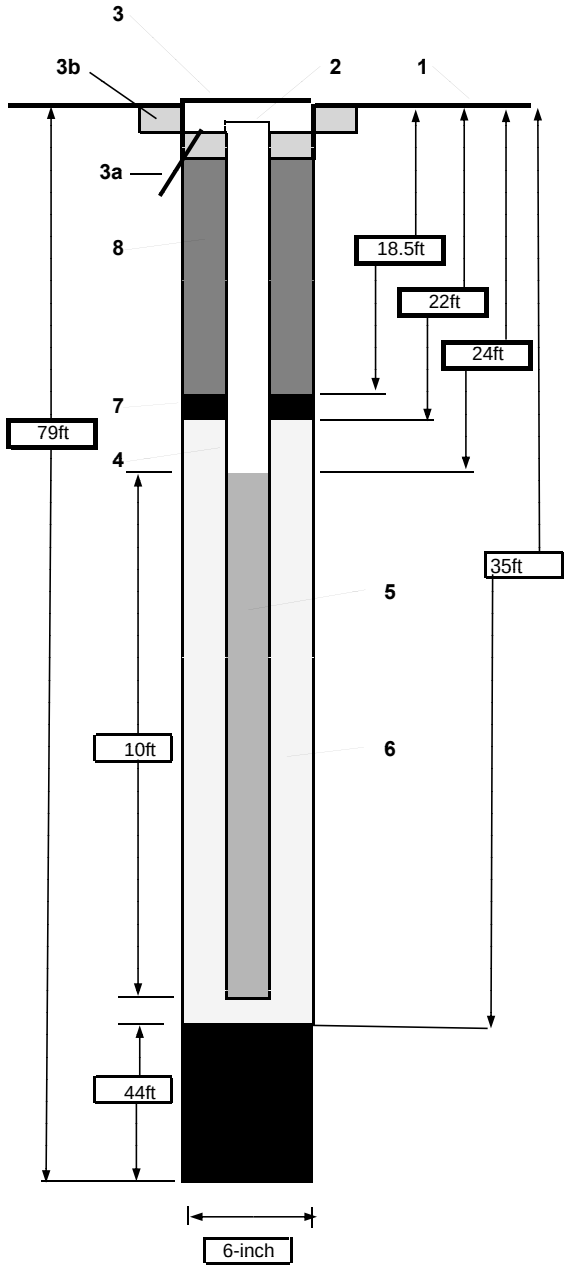
WELL COMPLETION DIAGRAM

PROJECT : Dow Hanging Rock Phase 1 RFI Investigation LOCATION : Hanging Rock Ohio

DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT USED : Spider Sonic Rig

WATER LEVELS : 21.3ft bgs START : 1/7/2012 08:40 END : 01/7/12 15:25 LOGGER : O. Ogbebor/DAY



1- Ground elevation at well: NA

2- Top of casing elevation: NA

3- Wellhead protection cover type: Flush Mount (Cast Iron)
a) drain tube? No
b) concrete pad dimensions 2ft x 2ft

4- Dia./type of well riser: 2-inch PVC (Schedule 40)

5- Type/slot size of screen: 2-inch PVC, slot 10

6- Type screen filter: Sand (Global #5)
a) Quantity used

7- Type of seal: Bentonite Seal
a) Quantity used

8- Grout
a) Grout mix used: Portland and benseal
b) Method of placement: Gravity

Development method: Surge and Pump

Development time: 55 mins

Estimated purge volume: 120 gallons

Comments

PROJECT NUMBER	WELL NUMBER	
420671.01.FI	MW - 06	SHEET 1 OF 1

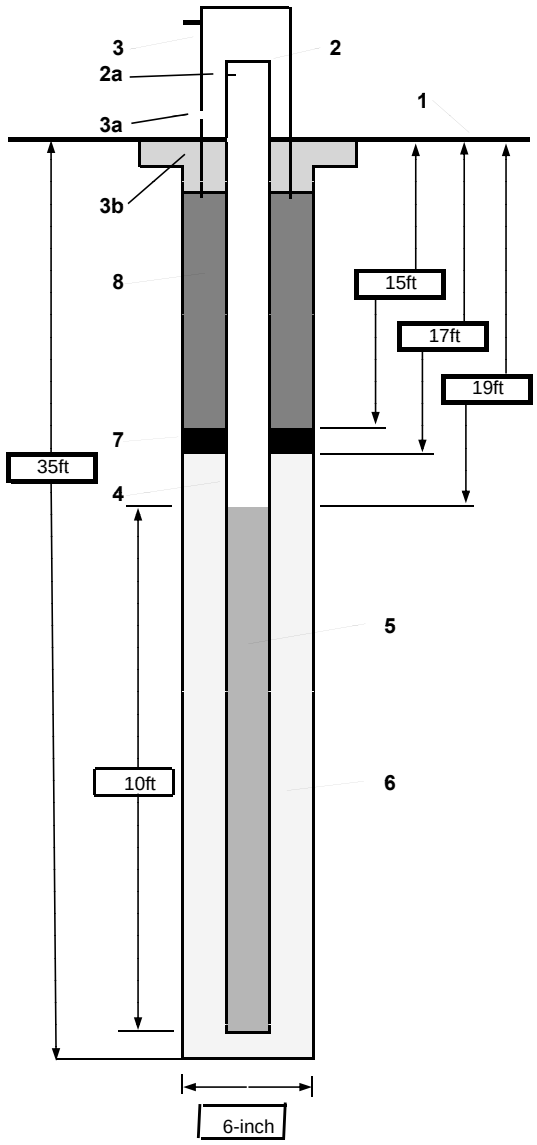
WELL COMPLETION DIAGRAM

PROJECT : Dow Hanging Rock Phase 1 RFI Investigation LOCATION : Hanging Rock Ohio

DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT USED : Spider Sonic Rig

WATER LEVELS : 19.08 ft bgs START : 1/9/2012 16:20 END : 1/10/12 11:10 LOGGER : O. Ogbebor/DAY



1- Ground elevation at well: NA

2- Top of casing elevation: NA
a) vent hole? No

3- Wellhead protection cover type: 4-inch Galvanized Steel Casing
a) weep hole? No
b) concrete pad dimensions: 2ft x 2ft

4- Dia./type of well casing: 2-inch PVC (Schedule 40)

5- Type/slot size of screen: 2-inch PVC, slot 10

6- Type screen filter: Sand (Global #5)
a) Quantity used: 5 bags

7- Type of seal: Bentonite Seal
a) Quantity used: 0.5 bags

8- Grout
a) Grout mix used: Portland and benseal
b) Method of placement: Gravity

Development method: Surge and Pump

Development time: 60 mins

Estimated purge volume: 115 gallons

Comments

PROJECT NUMBER	WELL NUMBER	
420671.01.FI	MW - 07	SHEET 1 OF 1

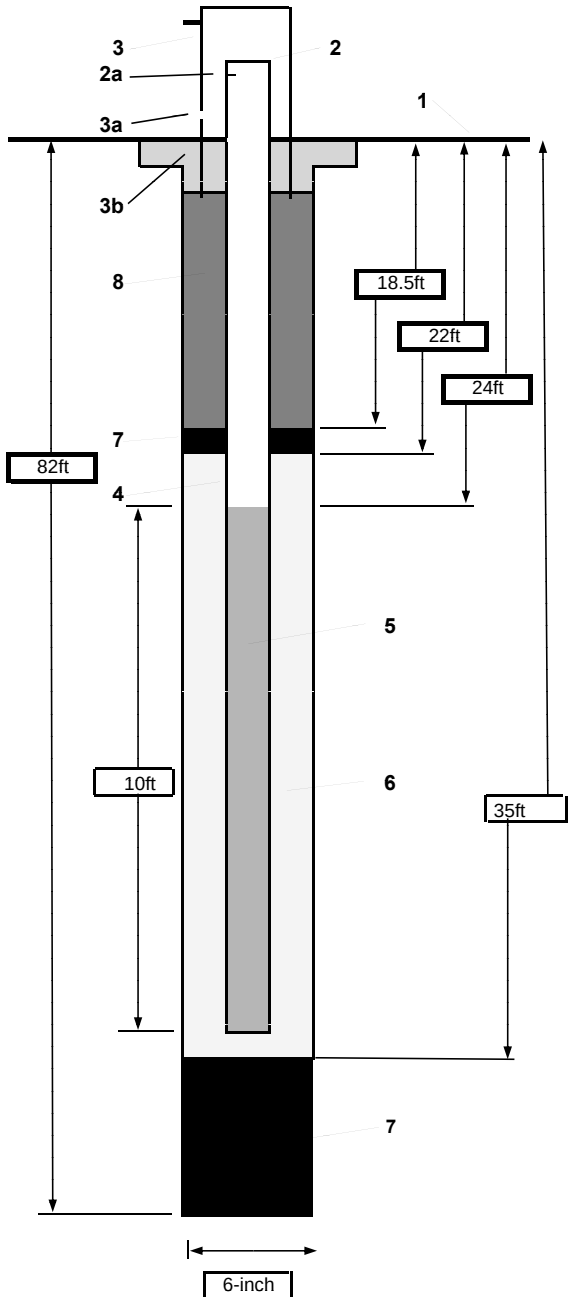
WELL COMPLETION DIAGRAM

PROJECT : Dow Hanging Rock Phase 1 RFI Investigation LOCATION : Hanging Rock Ohio

DRILLING CONTRACTOR : Boart Longyear

DRILLING METHOD AND EQUIPMENT USED : Spider Sonic Rig

WATER LEVELS : 26.05 ft bgs START : 1/8/2012 09:05 END : 1/9/12 14:20 LOGGER : O. Ogbebor/DAY



1- Ground elevation at well: NA

2- Top of casing elevation: NA
a) vent hole?: No

3- Wellhead protection cover type: 4-inch Galvanized Steel Casing
a) weep hole?: Yes
b) concrete pad dimensions: 2ft x 2ft

4- Dia./type of well casing: 2-inch PVC (Schedule 40)

5- Type/slot size of screen: 2-inch PVC, slot 10

6- Type screen filter: Sand (Global #5)
a) Quantity used: 5 bags

7- Type of seal: Bentonite Seal
a) Quantity used: 8 bags

8- Grout
a) Grout mix used: Portland and benseal
b) Method of placement: Gravity

Development method: Surge and Pump

Development time: 55 mins

Estimated purge volume: 130 gallons

Comments

CH2MHILL.

PROJECT NUMBER	WELL NUMBER	
420671	MW-01	SHEET 1 OF 1

WELL DEVELOPMENT LOG

PROJECT: Dow Hanging Rock Phase I LOCATION: Hanging Rock OH
DEVELOPMENT CONTRACTOR: Beart Longyear LOGGER: Osagumen Ogbebor
DEVELOPMENT METHOD AND EQUIPMENT USED: Simple mp pump
START: 1/12/12 0920 hrs
END: 1/12/12

START WATER LEVELS: 25.83 ft
WELL DEPTH: 30.45 ft
WELL VOLUME: 0.74 gal
MAXIMUM DRAWDOWN DURING DEVELOPMENT:
TOTAL QUANTITY OF WATER DISCHARGED:
DISPOSITION OF DISCHARGE WATER: 55 gal steel drum

Time	Water Volume Discharged (gal)	Water Level (ft BTOC)	Turbidity (NTU)	Temperature (°C)	pH	Specific Conductivity (mS/cm)	Remarks (color, odor, sheen, sediment, etc.)
1000	85 gal	26.25	74.9	15.10	5.89	319	clear
1003	95	26.25	46.3	15.12	5.88	315	clear
1006	98	26.25	36.2	15.10	5.88	314	clear
1010	100	26.25	20.1	15.10	5.89	313	clear
1012	105	26.25	20.6	15.12	5.86	314	clear

01/12/12

CV

0935 Water cleared, surged well again
0950 Water clear, surged well again
1000 Water clear, surged well again and moved pump to MW2 screen.

CH2MHILL.

PROJECT NUMBER	WELL NUMBER	
420671.01.FS	MW-02	SHEET 1 OF 1

WELL DEVELOPMENT LOG

PROJECT: Dow Hanging Rock phase I
LOCATION: Hanging Rock OH
DEVELOPMENT CONTRACTOR: Boart Longyear
LOGGER: O. Ogbebor
DEVELOPMENT METHOD AND EQUIPMENT USED: Surge and pump (Hurricane pump)
START: 01/11/12 1105
END: 01/11/12 1140

START WATER LEVELS: 26.43 ft
WELL DEPTH: 33.25 ft
WELL VOLUME: 1.08 gal
MAXIMUM DRAWDOWN DURING DEVELOPMENT: 0.06 ft
TOTAL QUANTITY OF WATER DISCHARGED: 68 gal
DISPOSITION OF DISCHARGE WATER: 55 gall steel drum.

Time	Water Volume Discharged (gal)	Water Level (ft BTOC)	Turbidity (NTU)	Temperature (°C)	pH	Specific Conductivity (mS/cm)	Remarks (color, odor, sheen, sediment, etc.)
1125	46.50	26.50	448	16.22	6.38	703	Brown
1130	55.00	26.50	232	16.48	6.27	704	light brown
1132	58	26.51	53.2	16.46	6.26	696	Clear
1135	62	26.50	31.0	16.47	6.26	694	clear
1138	64	26.50	22.4	16.47	6.26	695	clear
1140	68	26.50	18.1	16.47	6.26	694	clear

01/11/12

2638
33.35

1110 clear up, ~~surge~~ rinsed pump to mid screen / Surge
1120 Clear again surged
Moved pump to mid screen and start taking ready

CH2MHILL.

PROJECT NUMBER	WELL NUMBER	
420671.01.05	MW-03	SHEET 1 OF 1

WELL DEVELOPMENT LOG

PROJECT: Down Hanging Rock Plates LOCATION: Hanging Rock OH
DEVELOPMENT CONTRACTOR: Boart Longyear LOGGER:
DEVELOPMENT METHOD AND EQUIPMENT USED: Surge & pump (surge block & Hurricane pump
START: 1/11/12 1520
END: 1/11/12 1610

START WATER LEVELS: 28.23
WELL DEPTH: 36.75
WELL VOLUME: 1.36gal
MAXIMUM DRAWDOWN DURING DEVELOPMENT: 0.03ft
TOTAL QUANTITY OF WATER DISCHARGED: 150gal
DISPOSITION OF DISCHARGE WATER: 55gal steel drums

Time	Water Volume Discharged (gal)	Water Level (ft BTOC)	Turbidity (NTU)	Temperature (°C)	pH	Specific Conductivity (mS/cm)	Remarks (color, odor, sheen, sediment, etc.)
1550	110gal	28.26	280	16.01	6.65	295	light brown
1555	120gal	28.26	139	16.01	6.27	296	light brown
1600	130gal	28.27	43.5	15.99	6.13	291	Clear
1605	140gal	28.26	29.4	16.00	6.13	291	clear
1610	150gal	28.26	8.40	15.98	6.71	291	clear.

1/11/12

NOTE - 40gals injected during well installation
1518 Well clear Surged well again
1530 Cleared up, surged well again
1545 Cleared up raised pump to mw2 screen

CH2MHILL.

PROJECT NUMBER	WELL NUMBER	SHEET 1 OF 1
420671.01.FI	MW-04	

WELL DEVELOPMENT LOG

PROJECT: Dow Hanging Road Phase I LOCATION: Hanging Road 017
DEVELOPMENT CONTRACTOR: Boart Longyear LOGGER: O Ogbebor
DEVELOPMENT METHOD AND EQUIPMENT USED: Surge and pump (Surge block, Hurricane pump)
START: 1/12/12 1105
END: 1/12/12 1220

START WATER LEVELS: 24.83 ft
WELL DEPTH: 34.70 ft
WELL VOLUME: 1.58 gal
MAXIMUM DRAWDOWN DURING DEVELOPMENT: ~~24.89 ft~~ 0.03 ft
TOTAL QUANTITY OF WATER DISCHARGED: 150 gals
DISPOSITION OF DISCHARGE WATER: 55 gal steel drums

Time	Water Volume Discharged (gal)	Water Level (ft BTOC)	Turbidity (NTU)	Temperature (°C)	pH	Specific Conductivity (mS/cm)	Remarks (color, odor, sheen, sediment, etc.)
1150	90	24.89	30.3	16.18	6.02	441	light brown
1155	100	24.88	46.5	16.18	6.03	442	Clear
1200	110	24.89	39.1	16.18	6.03	440	Clear
1205	120	24.89	36.8	16.19	6.03	441	Clear
1210	130	24.89	21.1	16.20	6.03	440	Clear
1215	140	24.88	8.4	16.18	6.03	439	Clear
1220	150	24.89	8.0	16.18	6.03	439	Clear

OD 01/12/12

NOTE
Approximately 40 gal of water injected during drilling.
1118 purge water clear - Surge well
1130 purge water clear - Surge well again
1145 purge water clear - Move pump to mid screen

5_Well Development Form.xls

CH2MHILL.

PROJECT NUMBER	WELL NUMBER	
420671	MW-05	SHEET 1 OF 1

WELL DEVELOPMENT LOG

PROJECT: Dow Hanging Rock Phase I LOCATION: Hanging Rock OH
DEVELOPMENT CONTRACTOR: Boart Longyear LOGGER: O'Grady
DEVELOPMENT METHOD AND EQUIPMENT USED:
START: 1/11/12 1630
END: 1/11/12 1735

START WATER LEVELS: 20.72
WELL DEPTH: 33.50
WELL VOLUME: 2.05 gal
MAXIMUM DRAWDOWN DURING DEVELOPMENT: 0.14 ft
TOTAL QUANTITY OF WATER DISCHARGED: 120 gal
DISPOSITION OF DISCHARGE WATER: 55 gal Steel Drum

Time	Water Volume Discharged (gal)	Water Level (ft BTOC)	Turbidity (NTU)	Temperature (°C)	pH	Specific Conductivity (mS/cm)	Remarks (color, odor, sheen, sediment, etc.)
1710	70	20.86	266	18.82	6.08	645	light brown
1715	80	20.85	293	18.78	6.10	650	light brown
1720	90	20.86	240	18.78	6.09	648	light brown
1725	100	20.86	180.9	18.78	6.08	647	clear
1730	110	20.86	171.8	18.79	6.08	644	clear
1735	120	20.86	143	18.78	6.07	644	clear
			0.1/11	1.12			
		0.5					

1640 purge water clears up, Surged well again
1655 purge water cleared up, surged well again
1705 purge water cleared up, Moved pump to mid screen

CH2MHILL.

PROJECT NUMBER	WELL NUMBER	SHEET
420671.01.FI	MW-06	1 OF 1

WELL DEVELOPMENT LOG

PROJECT: ~~DOW Phase I~~ Hanging Rock Phase I LOCATION: Hanging Rock OH
DEVELOPMENT CONTRACTOR: ~~Boart Longyear~~ LOGGER: C Egbeber
DEVELOPMENT METHOD AND EQUIPMENT USED: Surge and pump (Surge block, Hurricane pump)
START: 11/1/12 1745
END: 11/1/12 1845

START WATER LEVELS: 21.23
WELL DEPTH: 31.60
WELL VOLUME: 1.66gal
MAXIMUM DRAWDOWN DURING DEVELOPMENT: 3.15ft
TOTAL QUANTITY OF WATER DISCHARGED: 115gal
DISPOSITION OF DISCHARGE WATER: 55gal steel drum

Time	Water Volume Discharged (gal)	Water Level (ft BTOC)	Turbidity (NTU)	Temperature (°C)	pH	Specific Conductivity (mS/cm)	Remarks (color, odor, sheen, sediment, etc.)
1820	65	24.38	116.7	16.09	6.47	624	clear
1825	75	24.38	56	16.07	6.47	624	clear
1830	85	24.37	33.4	16.07	6.47	623	clear
1835	95	24.38	19.3	16.06	6.47	623	clear
1840	105	24.38	13.4	16.07	6.47	623	clear
1845	115	24.38	8.1	16.07	6.47	623	clear

1755 Purge water clear, Surge well again
1 ~~845~~ Purge water clear, Surge well again
1815 Purge water cleared, Surge well and move pump to mid screen

29.15
28.95
20

CH2MHILL.

PROJECT NUMBER	WELL NUMBER	
420671.01.FI	MW-07	SHEET 1 OF 1

WELL DEVELOPMENT LOG

PROJECT: Dow Hanging Rock Phase I
LOCATION: Hanging Rock OH
DEVELOPMENT CONTRACTOR: Boart Longyear
LOGGER: O. Ogbebor
DEVELOPMENT METHOD AND EQUIPMENT USED: Surge and pump (Surge block, Hurricane pump
START: 01/12/12 0915
END: 01/12/12 1020

START WATER LEVELS: 28.95'
WELL DEPTH: 37.00'
WELL VOLUME: 1.29 gal
MAXIMUM DRAWDOWN DURING DEVELOPMENT: 0.2 ft
TOTAL QUANTITY OF WATER DISCHARGED: 130 gals
DISPOSITION OF DISCHARGE WATER: 55 gal steel drums

Time	Water Volume Discharged (gal)	Water Level (ft BTOC)	Turbidity (NTU)	Temperature (°C)	pH	Specific Conductivity (mS/cm)	Remarks (color, odor, sheen, sediment, etc.)
~~29.15~~		~~9~~					
0955	80	29.15	149	14.66	6.40	223	partly clear
1000	90	29.15	76.2	14.67	6.43	226	clear
1005	100	29.14	64.1	14.66	6.43	227	clear
1010	140	29.15	55.1	14.68	6.43	226	clear
1015	120	29.15	50.1	14.67	6.43	225	clear
1020	130	29.15	42.1	14.68	6.43	226	clear

01/12/12

0925 purge water clear, surge well again
0935 purge water clear, surge well again
0955 purge water clear, move pump to mid screen and

5_Well Development Form.xls

Appendix B
ODNR Logs

ODNR Well Log Information
Dow Hanging, Ironton Rock OH

Original Owner Name and Address	ODNR Well Log Number	County	Township	Aquifer Type	Total Depth (feet)	Test Rate (gpm)	Static Water Level (feet)	Date of Completion	Longiturde	Latitude	X Ohio State Plane South Nad 27	Y Ohio State Plane South Nad 27
Original Name: STEENBERGEN TURKEY F Address: 0 USRT 52	397299	LAWRENCE	HAMILTON	SAND AND GRAVEL	42	100	24	6/14/1971 0:00	Non-responsive	Non-responsive	1913408.19	208616.12
Original Name: DOW CHEMICAL CO. Address: 0 GILRUTH LN	233182	LAWRENCE	HAMILTON	SANDSTONE	80	200	39	8/4/1958 0:00			1916815.37	210538.22
Original Name: DOW CHEMICAL COMPANY Address: 0 SR 52	179974	LAWRENCE	HAMILTON	ROCK	75	225	35	4/10/1961 0:00			1916408.84	210014.01
Original Name: DOW CHEMICAL COMPANY Address: 0 BLACK TOP RD	203825	LAWRENCE	HAMILTON	HARDPAN	84	350	40	10/24/1955 0:00			1916563.71	208208.4
Original Name: PAUL PENOTTE Address: 0 USRT 52	270140	LAWRENCE	HAMILTON	SAND	48	0	22	5/20/1962 0:00			1918518.97	206694.02
Original Name: H NENNIE Address: 0 USRT 52	270141	LAWRENCE	HAMILTON	SAND	47	0	25	5/26/1962 0:00			1919177.17	206674.6
Original Name: OHIO POWER CO. Address: 0 SR 52	284676	LAWRENCE	HAMILTON	SAND	47	0	22	5/8/1963 0:00			1920571.02	207858.93
Original Name: GARY SINGLETON Address: 0 CR 23	350012	SCIOTO	GREEN	SANDSTONE	90	4	0	5/1/1967 0:00			1914902.82	213528.39
Original Name: RAYMOND GUSTIN Address: 0 CR 23	276161	SCIOTO	GREEN	SHALE	100	0	0	8/12/1964 0:00			1915549.56	213033.95
Original Name: BENNIL SMELYZER Address: 0 BOCK RD	284662	SCIOTO	GREEN	SHALE	60	2	12	9/9/1962 0:00			1916007.68	213033.95

Non-responsive

WELL LOG AND DRILLING REPORT

ORIGINAL

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1500 Dublin Road
Columbus, Ohio

No. 179974

County Lawrence Township ~~Ironton~~ Section of Township 7

Owner Dow Chemical Company Address Ironton, Ohio

Location of property Non-responsive

CONSTRUCTION DETAILS

Casing diameter 12" Length of casing 60'
Type of screen Cook Length of screen 15'
Type of pump Furnished by others
Capacity of pump
Depth of pump setting
Date of completion 2-31-61

BAILING OR PUMPING TEST

Pumping rate 225 G.P.M. Duration of test 24 hrs.
Drawdown 9 ft. Date 2-15-61
Developed capacity 225 GPM
Static level—depth to water 35 ft.
Pump installed by others

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
Clay and Surface	0 Feet	15 Ft.
Dry Mud and Pea Gravel	15'	25'
Coarse Gravel	25'	31'
Coarse Sand & Pea Gravel	31'	35'
Medium Sand	35'	44'
Coarse Sand	44'	60'
Coarse Sand, Some Gravel	60'	65'
Coarse Sand, Pea Gravel	65'	70'
Coarse Gravel & Coarse Sand	70'	75'
Rock	75'	

chem. analysis
7-13-61

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.

Non-responsive

Drilling Firm Diehl Pump & Supply Co. Date April 10, 1961

Address 3985 Race Road, Cincinnati 11, Ohio Signed Edw B. Wagner

Diehl Pump & Supply Co., Inc.

ORIGINAL

WELL LOG AND DRILLING REPORT

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1500 Dublin Road
Columbus, Ohio

No. 203825

County Lawrence Township Hamilton Section of Township 7

Owner Dow Chemical Company Address Ironton, Ohio

Location of property Non-responsive

CONSTRUCTION DETAILS

Casing diameter 12" Length of casing 75.6'
Type of screen Armco iron 0.080" slot Length of screen 10'
Type of pump DWT
Capacity of pump –
Depth of pump setting –
Date of completion 10-24-55

BAILING OR PUMPING TEST

Pumping rate 350 G.P.M. Duration of test 48 hrs.
Drawdown – ft. Date 10-27 to 10-29-55
Developed capacity –
Static level—depth to water 39.5 ft.
Pump installed by –

WELL LOG (Well #3)

Formations Sandstone, shale, limestone, gravel and clay	From	To
Surface clay	0 Feet	10 Ft.
Sandy clay, muddy and brown	10	18
Medium to coarse gravel, muddy	18	22
Medium to coarse gravel, 95%, clean, some coarse sand, 5%	22	30
Medium to fine gravel, 75%, medium sand, 25%	30	42
Medium gravel and heavy rocks, 45%, medium sand, 55%	42	47
Medium sand, 90%, some scattered gravel, 10%	47	55
Fine packed sand, dirty, 98%, fine gravel, 2%	55	81
Heavy gravel and boulders, 75%, coarse sand, 25%	81	84
Hardpan	84	

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.

Non-responsive

Drilling Firm Ranney Method Water Supplies, Inc. Date 10/24/55
Address 841 Alton Avenue, Columbus, Ohio Signed Carl Garretson

WELL LOG AND DRILLING REPORT

State of Ohio
Department of Natural Resources
Division of Water
~~1500 Dublin~~ Parkway Avenue
Columbus, Ohio

NO. 233182 7

County LAWRENCE Township HAMILTON Section of Township 15 & 16

Owner DOW CHEMICAL CO. Address

Location of property Non-responsive

CONSTRUCTION DETAILS		BAILING OR PUMPING TEST	
Casing diameter 26" 12"	Length of casing 70' 71'	Pumping rate 200	G.P.M.
Type of screen COOK	Length of screen 10'	Duration of test	Hrs.
Type of pump R.K.H.C		Drawdown 7'-4" ft.	Date
Capacity of pump 200 G.P.M		Static level - depth to water 38'-3"	Ft.
Depth of pump setting 65'		Quality	
Date of completion 8-4-58		Pump installed by	

WELL NO. 3

WELL LOG

Formation	From	To
CLAY	0	20
SAND & GRAVEL	20	39
SAND & PEA GRAVEL	39	45
FINE SAND	45	55
GRAY SAND	55	80
SANDSTONE	80	

SKETCH SHOWING LOCATION

N.

Non-responsive

Drilling Firm LAYNE - OHIO CO. Date

Address Copied by J.A.N.

ORIGINAL

WELL LOG AND DRILLING REPORT

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1562 W. First Avenue
Columbus, Ohio

PLEASE USE PENCIL OR TYPEWRITER. DO NOT USE INK.

No. 233182

County Lawrence Township Hamilton Section of Township

Owner Dow Chemical Co. Address

Location of property Non-responsive

CONSTRUCTION DETAILS

Casing diameter Length of casing
Type of screen Length of screen
Type of pump
Capacity of pump
Depth of pump setting
Date of completion 8-4-58

BAILING OR PUMPING TEST

Pumping rate G.P.M. Duration of test hrs.
Drawdown ft. Date
Developed capacity
Static level—depth to water ft.
Pump installed by

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
Well No. 3	0 Feet	Ft.

SKETCH SHOWING LOCATION

Locate in reference to numbered
State Highways, St. Intersections, County roads, etc.

N.

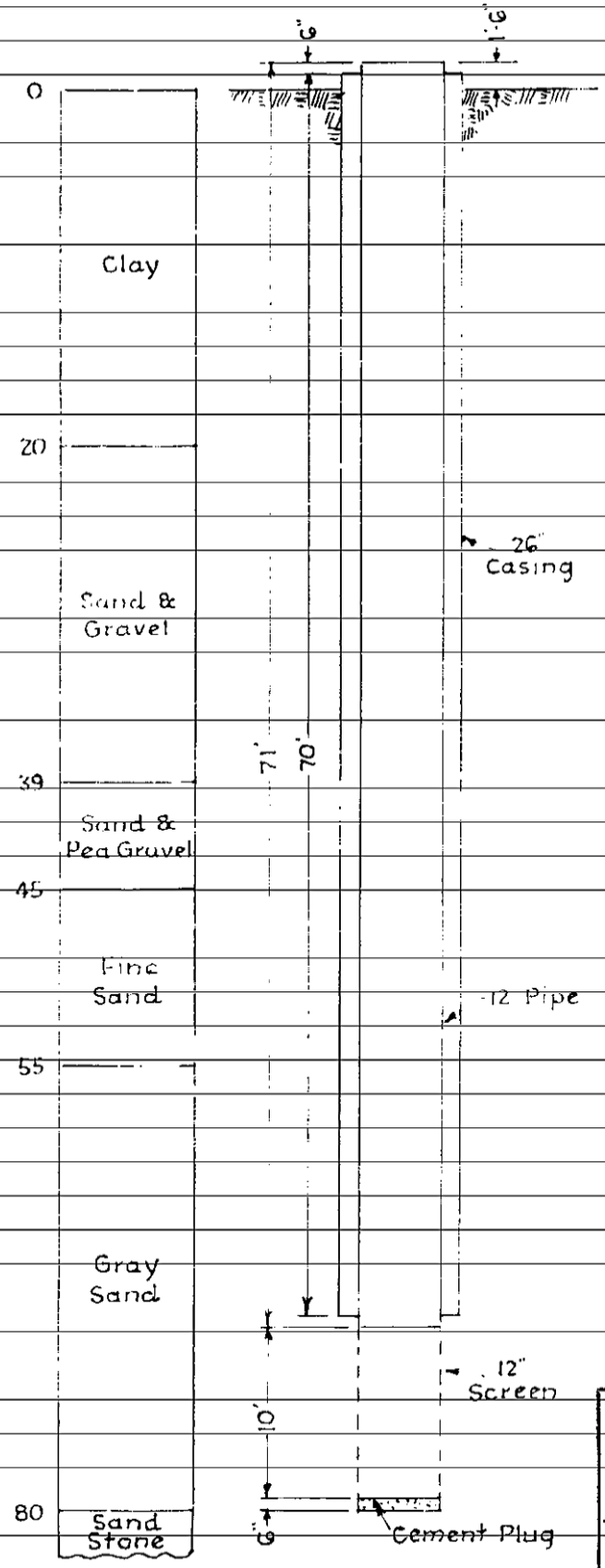
W. E.

S.

See reverse side for instructions

Drilling Firm Layne-Ohio Co. Date

Address Signed



MATERIAL

Pit: [illegible] Steel Pipe

Screen [illegible]

Cone

PUMP:

No

Type

Setting

Suction

Discharge

Tubing

Shafting

MOTOR:

Make

Volts

Phase

H. P.

Frame

WELL:

Capacity

Guarantee

Started

Finished

Accepted

REMARKS

[illegible]

Driller:

Installer

THE [illegible]

DOW CHEMICAL CO.

HANGING ROCK PLANT

IRONTON, OHIO

1365

WELL LOG AND DRILLING REPORT

ORIGINAL

10

PLEASE USE PENCIL OR TYPEWRITER. DO NOT USE INK.

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1562 W. First Avenue
Columbus, Ohio

No. 270140

County Lawrence Township Hamilton Section of Township M 8

Owner Paul Renatte, Address Box 355 Ironton Ohio

Location of property Non-responsive

CONSTRUCTION DETAILS

Casing diameter 2" Length of casing 42

Type of screen Point Length of screen 4"

Type of pump ½ H.P. myers

Capacity of pump 200 G.P.M.

Depth of pump setting 41 ft

Date of completion 5-20-62

BAILING OR PUMPING TEST

Pumping rate ..... G.P.M. Duration of test ..... hrs.

Drawdown ..... ft. Date .....

Developed capacity .....

Static level—depth to water 22 ft.

Pump installed by Drillers

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
clay	0 Feet	14 Ft.
Sand & Gravel	14	25
Sand	25	48
Water at 39 ft		

SKETCH SHOWING LOCATION

Non-responsive

Drilling Firm Tackett & Sons

Address Franklin Furnace O.

Date 5-20-62

Signed Austin Tackett

WELL LOG AND DRILLING REPORT

ORIGINAL

11

PLEASE USE PENCIL OR TYPEWRITER. DO NOT USE INK.

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1562 W. First Avenue
Columbus, Ohio

No. 270141

County LAWRENCE Township Hamilton HAMILTON Section of Township 8 WF

Owner Dr. H. NENNIC Address

Location of proper Non-responsive [redacted]

CONSTRUCTION DETAILS

Casing diameter 2" Length of casing 42'
Type of screen Point Length of screen 3 ft.
Type of pump Deep well
Capacity of pump
Depth of pump setting 41 ft
Date of completion 5-26-62

BAILING OR PUMPING TEST

Pumping rate G.P.M. Duration of test hrs.
Drawdown ft. Date
Developed capacity good
Static level—depth to water 25 ft.
Pump installed by owner

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
	0 Feet	12 Ft.
clay		
Sand	12	28
Sand & Gravel	28	34
Sand	34	47
water at 40 ft.		

SKETCH SHOWING LOCATION

Locate in reference to numbered

Non-responsive [redacted]

Drilling Firm Tackett & Sons
Address Franklin Furnace Ohio

Date 5-26-62
Signed C Trusty Tackett

WELL LOG AND DRILLING REPORT

ORIGINAL

PLEASE USE PENCIL OR TYPEWRITER DO NOT USE INK.

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1562 W. First Avenue
Columbus 12, Ohio

No 276161

County Scioto Township Green Section of Township

Owner Raymond Gueston Address Joaston, Ohio

Location of property Non-responsive

CONSTRUCTION DETAILS

Casing diameter 5-5/8" I.D. Length of casing 34.6"

Type of screen Length of screen

Type of pump

Capacity of pump

Depth of pump setting

Date of completion

BAILING OR PUMPING TEST

Pumping Rate G.P.M. Duration of test hrs.

Drawdown ft. Date

Static level-depth to water ft.

Quality (clear, cloudy, taste, odor)

Pump installed by

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
Earth	0 Feet	6 Ft.
muddy Sand & Gravel	6'	32'
Coal & Slate	32	34
Shale, grey	34	45
Shale, gritty	45	90
Sandstone	90	97
Shale, grey	97	100'
Water at 90'		
3 GPM		

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.

Non-responsive

Drilling Firm G. T. Williams & Sample Date Aug. 12, 1964

Address Ashland, Ky. Signed G. T. Williams Jr.

135

WELL LOG AND DRILLING REPORT

ORIGINAL

14

PLEASE USE PENCIL OR TYPEWRITER DO NOT USE INK.

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1562 W. First Avenue
Columbus 12, Ohio

No 284676

County Lawrence Township Hamilton Section of Township 8 OK

Owner Ohio Power Co. Address P.O. Box 501 Mt Gilead O.

Location of property [redacted]

CONSTRUCTION DETAILS

Casing diameter 2 Length of casing 43

Type of #60 Paint Length of screen 3ft

Type of pump

Capacity of pump

Depth of pump setting

Date of completion 5-6-63

BAILING OR PUMPING TEST

Pumping Rate G.P.M. Duration of test hrs.

Drawdown ft. Date

Static level-depth to water Clear 22 ft.

Quality (clear, cloudy, taste, odor)

Pump installed by Reuter

WELL LOG

Formations Sandstone, shale, limestone, gravel and clay	From	To
Clay	0 Feet	10 Ft.
Sand	10ft	20ft
Sand & Gravel	20ft	35ft
Sand	35ft	40ft
water at 40ft.		

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.

[redacted]

Drilling Firm Jacketts Sons

Address Franklin Furnace Ohio

Date 5-8-63

Signed Chester Jacketts

WELL LOG AND DRILLING REPORT

ORIGINAL (94)

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
1562 W. First Avenue
Columbus, Ohio 43212

PLEASE USE PENCIL OR TYPEWRITER
DO NOT USE INK.

No 350012

past Lock
Blacktop on rt.

County Scioto Township Green Section of Township

Owner Gary Singleton Address Ashland, Ironton, Ohio

Location of property Non-responsive

CONSTRUCTION DETAILS

Casing diameter 6" O.D. Length of casing 48'
Type of screen Length of screen
Type of pump
Capacity of pump
Depth of pump setting
Date of completion

BAILING OR PUMPING TEST

Pumping Rate 4 G.P.M. Duration of test hrs.
Drawdown ft. Date
Static level-depth to water ft.
Quality (clear, cloudy, taste, odor)
Pump installed by

WELL LOG*

Formations Sandstone, shale, limestone, gravel and clay	From	To
Earth	0 Feet	12 Ft.
muddy Sand	12	39
Sand & Gravel	39	46
Shale	46	83
Sandstone Water	83	90
4 GPM		

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.

Non-responsive

See reverse side for instructions

Drilling Firm M. J. Williams
Address Ashland, Ky.
Date May - 1967
Signed

*If additional space is needed to complete well log, use next consecutive numbered form.

(134)

WELL LOG AND DRILLING REPORT

ORIGINAL

NO CARBON PAPER NECESSARY— SELF-TRANSCRIBING

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
65 S. Front St., Rm. 815 Phone (614) 469-2646
Columbus, Ohio 43215

No. 397299

County LAWRENCE Township Hamilton Section of Township 7 OK

Owner STEENBERGEN Turkey Farms Address Hanging Rock Ohio

Location of property [redacted]

CONSTRUCTION DETAILS

Casing diameter 10" Length of casing 40'
Type of screen Red Brass top 3' - #20 Length of screen 6'
Type of pump Deming 1½ HS turbine
Capacity of pump 100 Gpm
Depth of pump setting 40'
Date of completion 6-14-71

BAILING OR PUMPING TEST
(Specify one by circling)

Test Rate 100 G.P.M. Duration of test 6 hrs.
Drawdown 9 ft. Date 6-14-71
Static level-depth to water 24 ft.
Quality (clear, cloudy, taste, odor) Clear
Pump installed by Stan Ruby

WELL LOG*

Formations Sandstone, shale, limestone, gravel and clay	From	To
Clay	0 Feet	15 Ft.
Sand & Gravel	15	42

SKETCH SHOWING LOCATION

Locate in reference to numbered State Highways, St. Intersections, County roads, etc.

[redacted]

Drilling Firm STANLEY G. RUBY Date 6-14-71

Address Rt 2. Lucasville, O. Signed Stanley Ruby

*If additional space is needed to complete well log, use next consecutive numbered form.

County Permit No. 10335

NO CARBON PAPER NECESSARY – SELF-TRANSCRIBING

WELL LOG AND DRILLING REPORT

ORIGINAL

State of Ohio
DEPARTMENT OF NATURAL RESOURCES
Division of Water
Fountain Square
Columbus, Ohio 43224

544804

COUNTY Laurence TOWNSHIP Hamilton SECTION OF TOWNSHIP 7K

OWNER Dorothy - Edward Bowling ADDRESS Haverhill

LOCATION OF PROPERTY [redacted]

CONSTRUCTION DETAILS

Casing diameter 6 OD Length of casing 43ft.

Type of screen _____ Length of screen _____

Type of pump _____

Capacity of pump _____

Depth of pump setting _____

Date of completion _____

BAILING OR PUMPING TEST
(specify one by circling)

Test rate 20 gpm Duration of test 2 hrs

Drawdown _____ ft Date _____

Static level (depth to water) 20ft ft

Quality (clear, cloudy, taste, odor) clear

Pump installed by owner

WELL LOG*

Formations: sandstone, shale, limestone, gravel, clay	From	To
Sand + Blu Clay	0 ft	36 ft
Fire Clay	36	50
Hard Rock	50	68

SKETCH SHOWING LOCATION

Locate in reference to numbered state highways, street intersections, county roads, etc.

[redacted]

Non-responsive

DRILLING FIRM Chaffin & Sons

ADDRESS Rt # 1 Box 278 La Point, O

DATE May 19, 1978

SIGNED Shelton Chaffin

*If additional space is needed to complete well log, use next consecutive numbered form.

Appendix C

Letter Documenting Proposed Sample Location Relocation

CH2M HILL
7927 Nemco Way
Suite 120
Brighton, MI 48116
Tel 810-360-2051

November 30, 2011

Mr. Gregory Rudloff
United States Environmental Protection Agency
Region 5
77 W. Jackson Blvd. LU-9J
Chicago, IL 60604

Subject: Proposed Revisions to Soil Boring and Monitoring Well Locations
RCRA Facility Investigation Phase 1 Work Plan
Dow Hanging Rock Plant, Ironton, Ohio
EPA ID# OHD 039 128 913

Dear Mr. Rudloff:

On behalf of The Dow Chemical Company, CH2M HILL reviewed historical site drawings, performed site reconnaissance, cleared utilities, and surveyed soil boring and monitoring well locations the week of November 15, 2011 in preparation of implementing the Investigation Phase I Work Plan. Based on this work, several of the proposed boring and well locations were identified as needing to be moved since they were not accessible, they were located above underground utilities, and/or the actual location of the solid waste management unit (SWMU) was different than originally expected.

The proposed revised locations are shown in the attached table and figures. The attached table presents the location ID, the offset distance and direction, and the rationale for the change. The affected soil boring locations are in SWMUs 1, 12, 17, 24, 25-28, and 29, and the affected monitoring well locations area MW-01, 04, and 06.

Dow requests your review and approval of the revised soil boring and monitoring well locations. I can be reached at (810) 360-2051 if you have any questions. Thank you.

Sincerely,

Mark E. Holland, PE
CH2M HILL

Cc: Tim King/The Dow Chemical Company
Dave Boehnker/CH2M HILL
file

Soil Boring and Monitoring Well Location Offsets
Dow Hanging Rock Facility

SWMU	Proposed Location ID	Offset Distance and Direction	Rational for Relocation
1	S1-SS04	5 ft N of planned location	Moved due to sanitary sewer running east-west through the proposed location
	S1-SS05	5 ft N of planned location	Moved due to sanitary sewer running east-west through the proposed location
	S1-SS06	5 ft NW of planned location	Moved due to sanitary sewer line running east-west and overhead obstacle running north-south through the proposed location
	S1-SS07	5 ft W of planned location	Moved due to sanitary sewer running north-south through the proposed location.
12	S12-SS01	9 ft S of planned location	Moved outward toward the edge of the concrete containment area for the methylene chloride tank due to overhead clearance issues for drill rig access due to existing tank and pipelines. Location is still within the containment area
	S12-SS02	11 ft NE of planned location	Moved outward toward the edge of the concrete containment area for the the methylene chloride tank due to overhead clearance issues for drill rig access due to existing tank and pipelines. Location is still within the containment area
17	S17-SS02	10 ft NW of planned location	Moved due to several utilities (including potable water line, fire protection, electric, gas, telephone and others) that run through the proposed location
	S17-SS03	350 ft NE of planned location (S of truck scale along 5th Street)	Based on site reconnaissance, the southern leg of SWMU 17 (drainage system) that runs east-west is actually part of SWMU 18 (drainage ditch). Therefore, the sample location has moved to the southern portion of north-south section of SWMU 17, south of the truck scale, along 5th Street. A sample will be collected from the drainage ditch at the original S17-0003 location as part of SWMU 18, and will be identified as S18-SD06.
24	S24-SS01	75 ft SW of planned location	Location will need to be moved due to truck loading ramp and underground utilities (electric sanitary sewer and water) in the area. A revised location will be identified in the field that is along the sewer north of the originally proposed location which is accessible and away from underground utilities
	S24-SS03	38 ft W of planned location	Location moved to be close to the joint between the north-south and east-west trending sections of the process sewer line. The joint was idenitified in the field near the new location.
	S24-SS05	8 ft N of planned location	Moved due to electrical line running southeast of the proposed location
25-28	S25-SS01	47 ft W of planned location	Blue print of the former waste water treatment system was recently identified and reviewed which showed the location of the treatment system to be different from the location shown in the work plan. Ground penetration radar (GPR) also identified the outline of the foundation of the former waste water system and was consistent with the blue print. Therefore, the locations were moved to be within the revised footprint of the former waste water system.
	S25-SS02	51 ft W of planned Location	
	S25-SS03	62 ft NW of planned location	
	S25-SS04	63 ft NW of planned location	
29	S29-SS01	2ft E of planned location	Moved due to aboveground pipe rack in the proposed location which restricted access
	S29-SS02	4ft N of planned location	Moved due to elbow of aboveground pipe rack in the proposed location which restricted access
MWs	MW-01	75ft N of planned location	Moved due to railroad tracks and a gas transmission pipeline running east-west of the proposed location
	MW-06	60ft S of planned location	Moved because proposed location was in the middle of the road and there is a ditch and utility corridor immediately to the south of the road.
	MW-04	15ft S of planned location	Moved because proposed location is in ditch

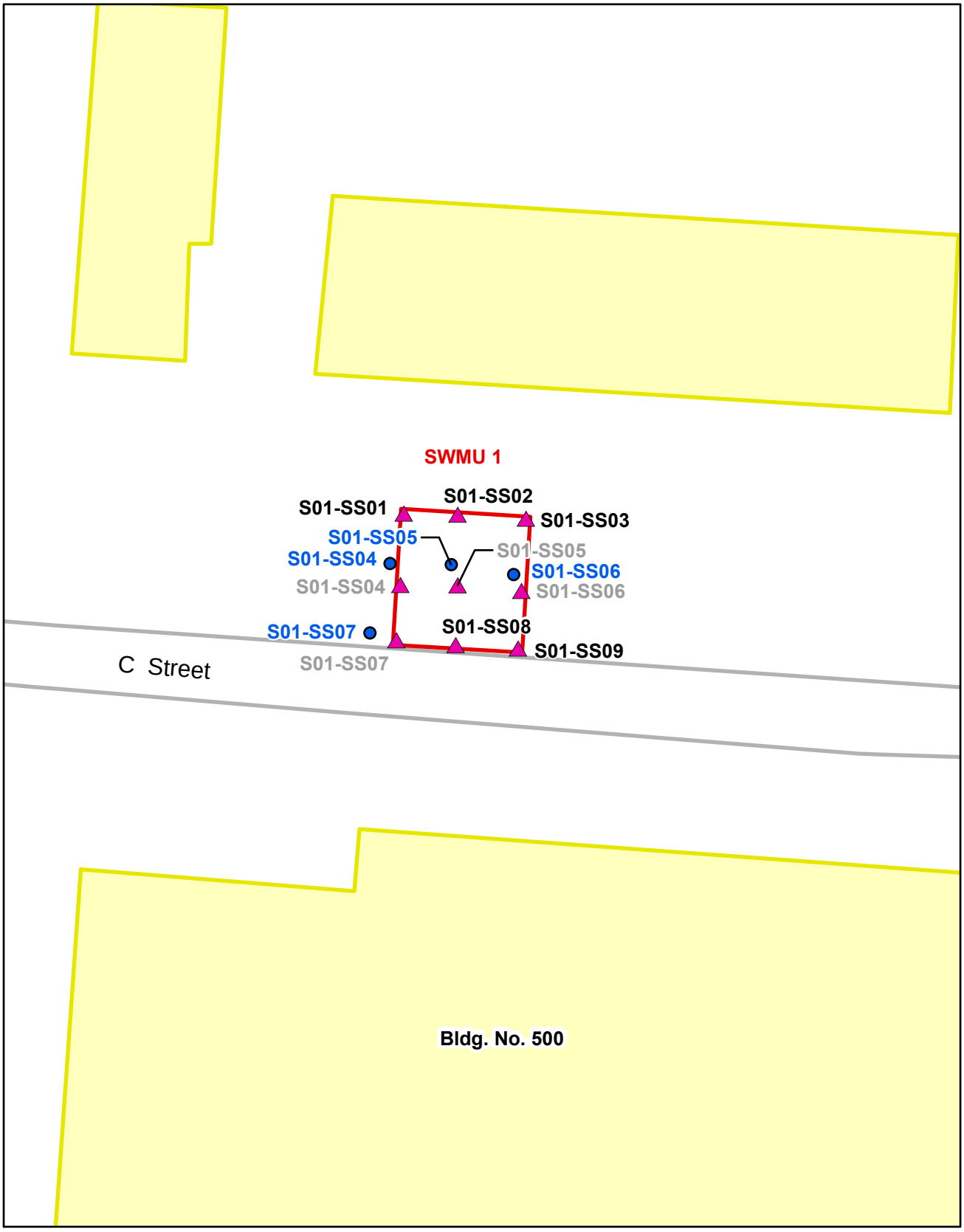
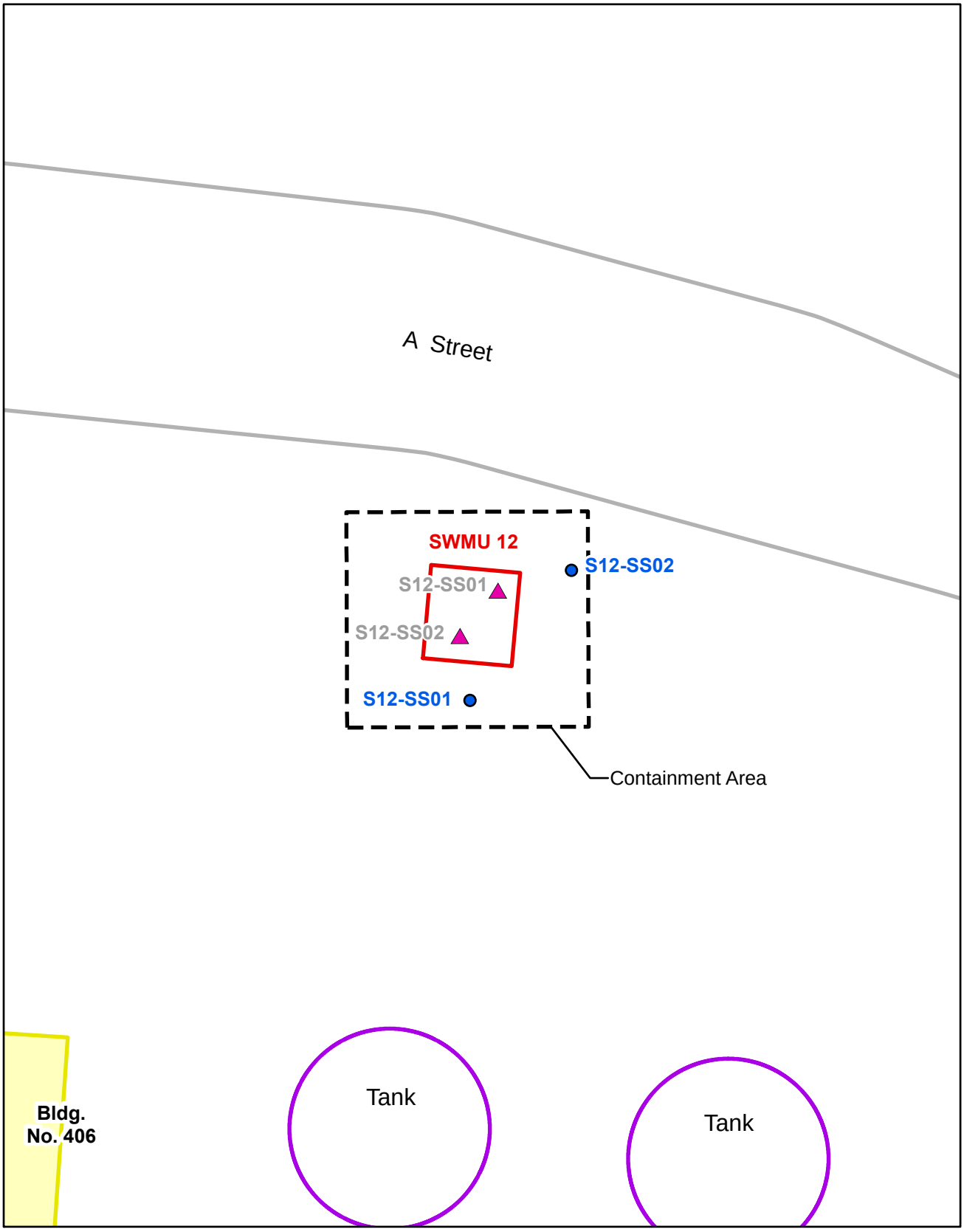


FIGURE 4-1
SWMU 1 – Proposed Sample Locations
Dow Hanging Rock
Ironton, Ohio

CH2MHILL



LEGEND

- Containment_Area
- SWMU
- Tank
- Edge of Road
- Proposed Soil Boring
- Surveyed Soil Boring

Notes:

1. If possible, borings will be located within the containment area.
2. Containment area is the proposed revised SWMU boundary.

N

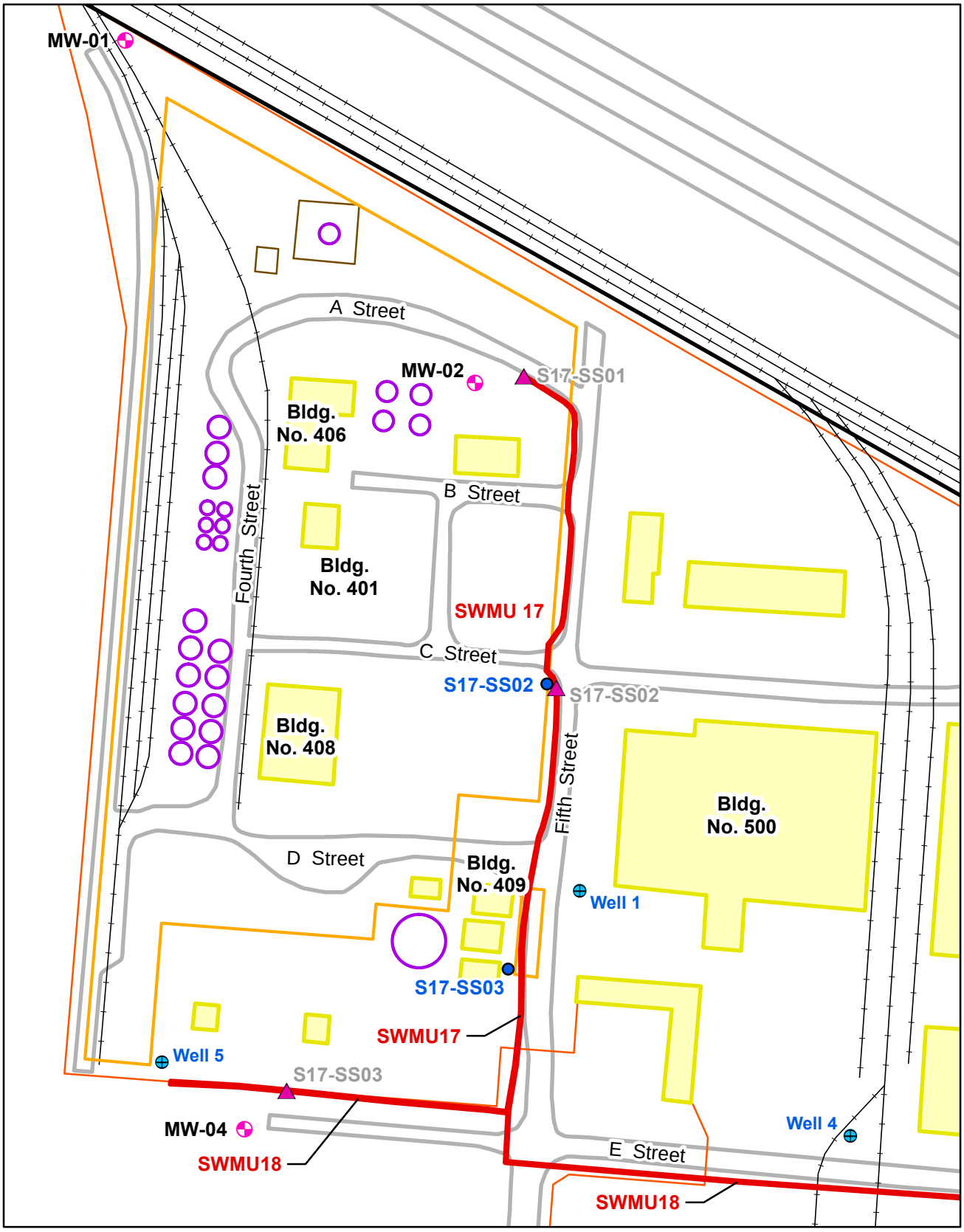
0 10 20

Feet

FIGURE 4-3
SWMU 12 – Proposed Sample Locations
Dow Hanging Rock
Ironton, Ohio

CH2MHILL

RDD \\BALDUR\PROJ\DOW_HANGING_ROCK_404798\MAPFILES\PROPOSED_LOCS\FIG4-3_SWMU_12_PROPOSED.MXD MSCHROCK 11/30/2011 12:12:01 AM



LEGEND

- SWMU
- Building
- Approximate Site Boundary
- Property Owned or Leased by Others
- Tank
- Railroad
- Fence
- Edge of Road
- Proposed Monitoring Well
- Proposed Soil Boring
- Survey Soil Boring
- Approximate Water Well Location

N

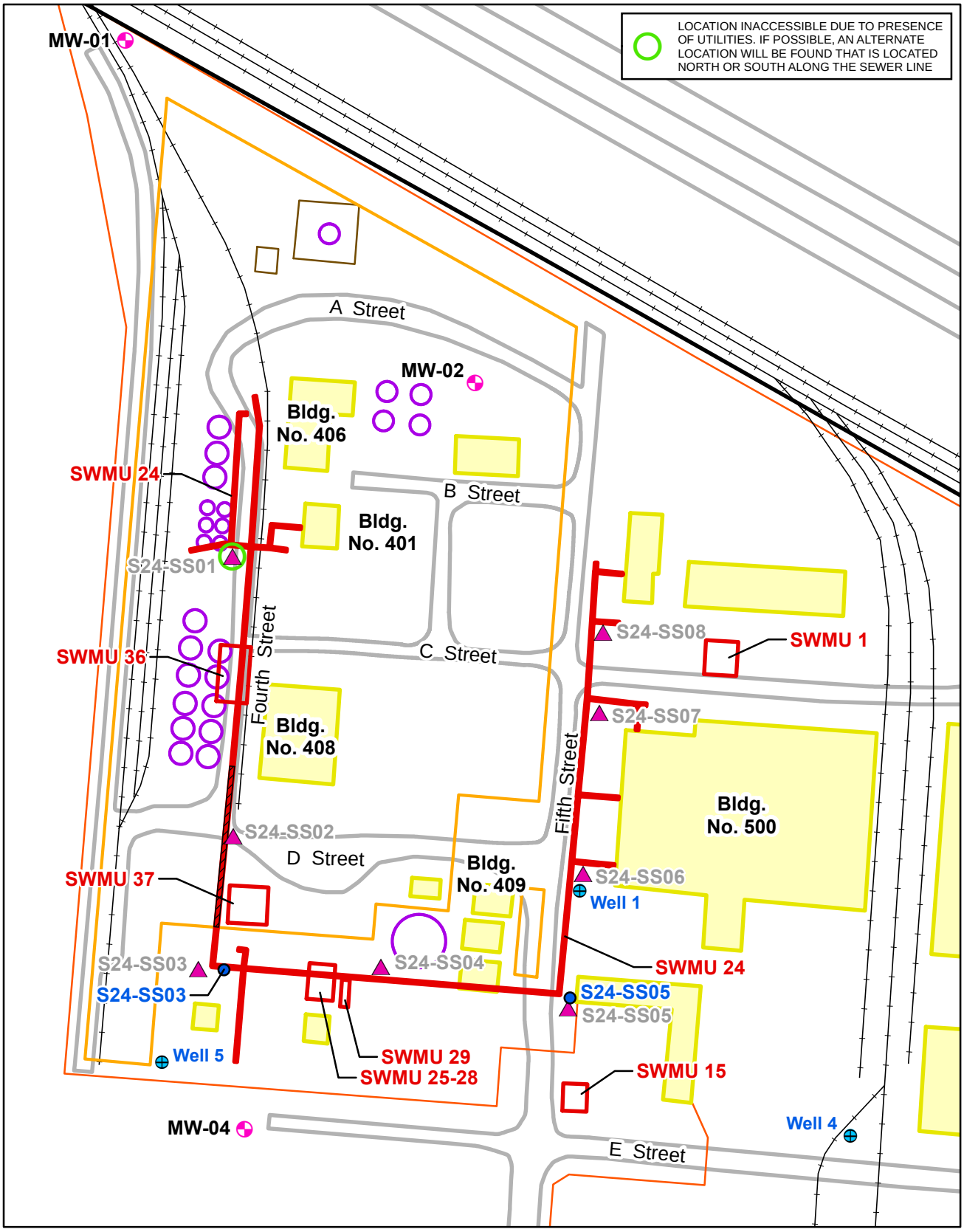
0 50 100 200

Feet

FIGURE 4-5
SWMU 17 – Proposed Sample Locations

Dow Hanging Rock
Ironton, Ohio

CH2MHILL



LEGEND

- Surveyed Soil Boring
- Proposed Monitoring Well
- Proposed Soil Boring
- Approximate Water Well Location
- Approximate Location of Process Sewer Line Voluntary Closure Excavation Area
- SWMU
- Property Owned or Leased by Others
- Approximate Site Boundary
- Tank
- Building
- Railroad
- Fence
- Edge of Road

N

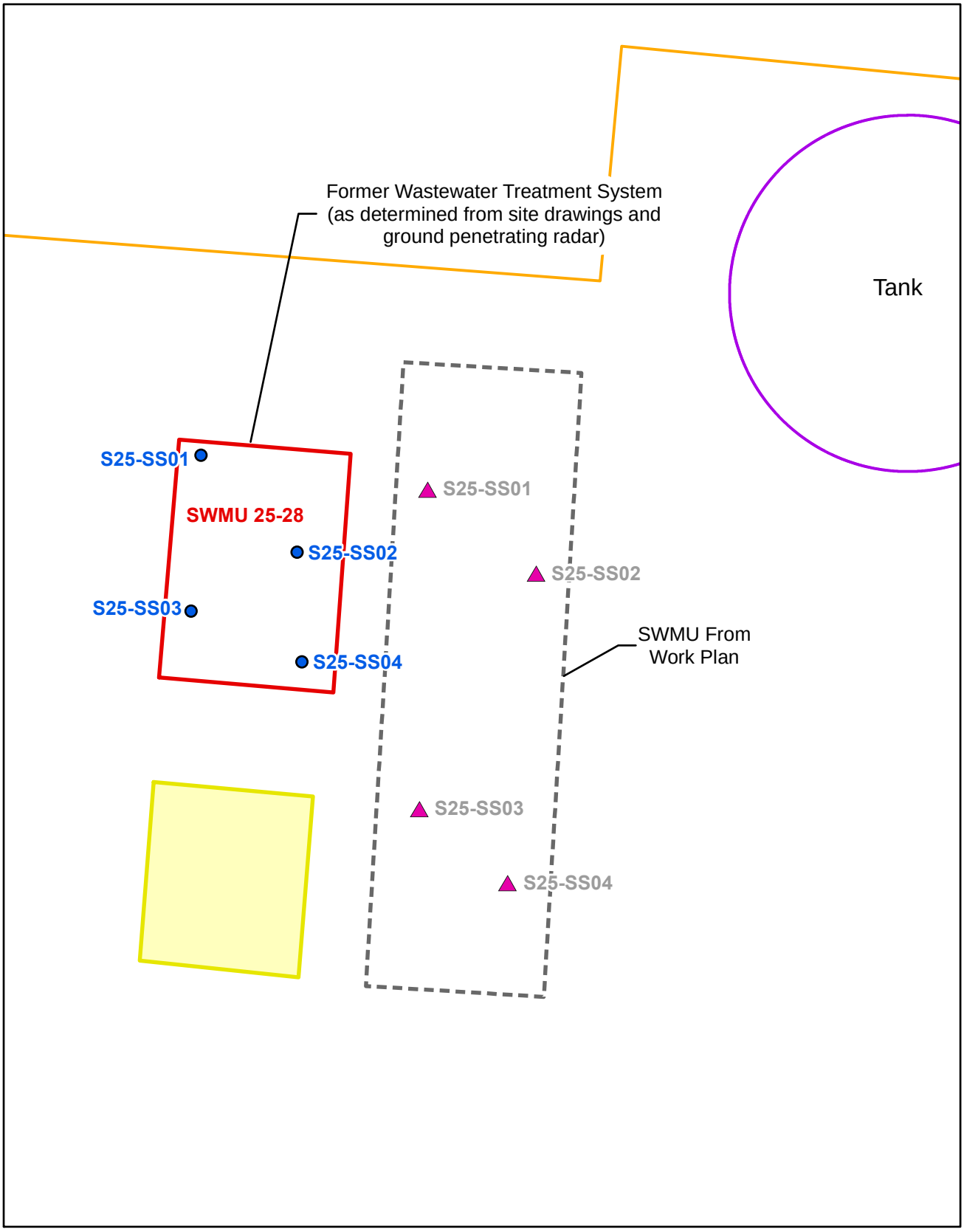
0 50 100 200

Feet

FIGURE 4-8
SWMU 24 – Proposed Sample Locations

Dow Hanging Rock
Ironton, Ohio

CH2MHILL



LEGEND

- SWMU
- Property Owned or Leased by Others
- Building
- SWMU From Work Plan
- Approximate Water Well Location
- Proposed Soil Boring
- Surveyed Soil Boring

N

0 15 30
Feet

Note:
1. Samples will be taken from areas not used as parking lots.

FIGURE 4-9
SWMU 25-28 – Proposed Sample Locations
Dow Hanging Rock
Ironton, Ohio

CH2MHILL

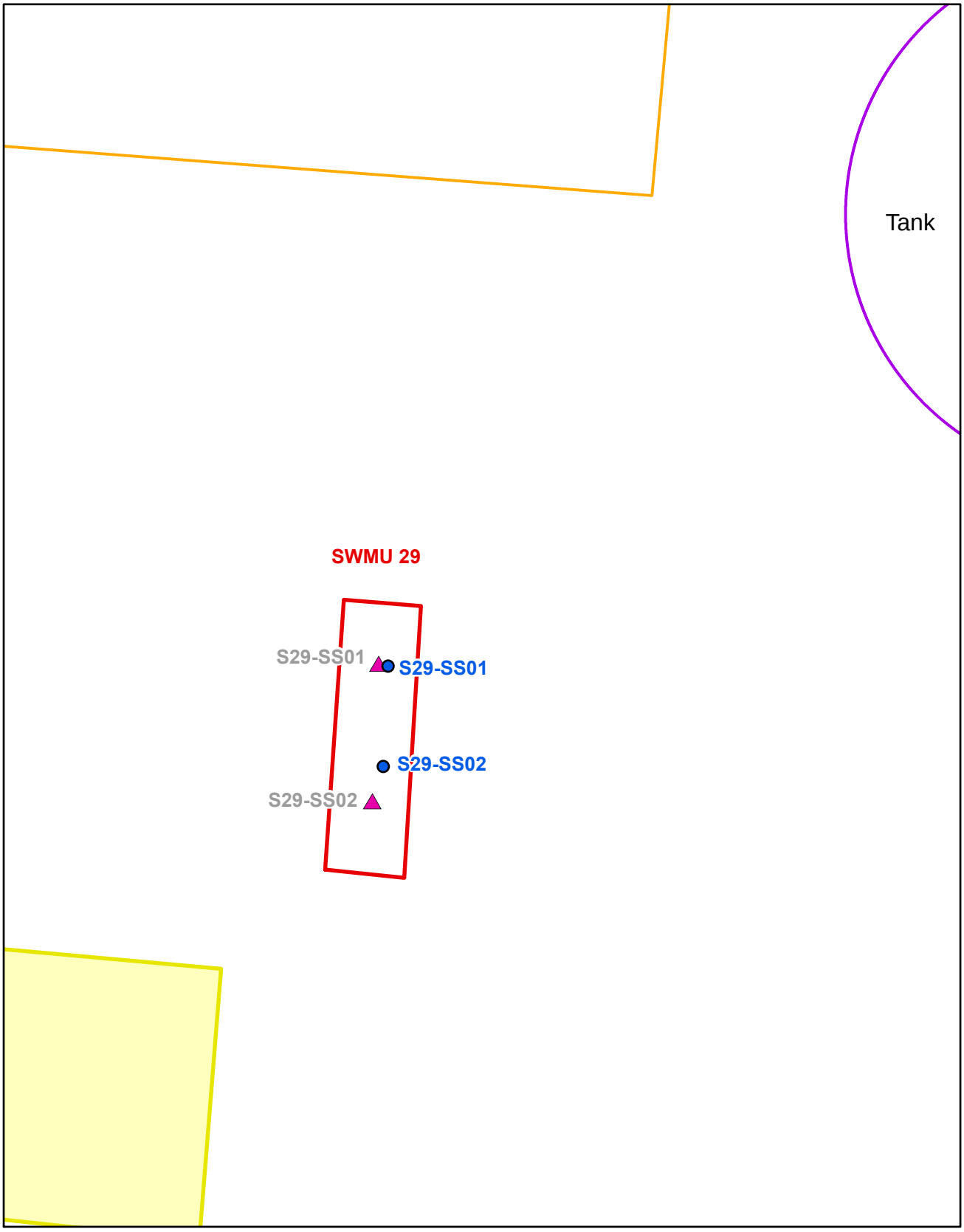


FIGURE 4-10
SWMU 29 – Proposed Sample Locations
Dow Hanging Rock
Ironton, Ohio

CH2MHILL

MW-01
SWMU 19
SWMU 12
AOC D
U.S. Hwy 52
SWMU 24
MW-02
SWMU 17
SWMU 36
SWMU 1
MW-03
SWMU 24
SWMU 37
SWMU 11
Well 1
SWMU 25-28
SWMU 24
Well 5
SWMU 15
MW-04
Well 4
SWMU 29
Well 2
SWMU 18
SWMU 18
Fifth Street
Well 3
MW-05
MW-06
Seventh Street
MW-07
Old U.S. 52
SWMU 18
Ohio River

LEGEND

- Approximate Site Boundary
- Property Owned or Leased by Others (Dashed = Assumed Boundary)
- AOC
- SWMU
- Building
- Miscellaneous Structure
- Tank
- Railroad
- Fence
- Edge of Road
- Approximate Water Well Location
- Proposed Monitoring Well
- Proposed Monitoring Well / Deep Boring

N

0 250 500
Feet

FIGURE 4-12
Current and Proposed Wells
Dow Hanging Rock
Ironton, Ohio

CH2MHILL

Appendix D
Laboratory Reports (on CD)

Lancaster Laboratories

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Analysis Report

ANALYTICAL RESULTS

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425

Prepared for:

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

December 23, 2011

Project: Dow Hanging Rock, OH

Submittal Date: 12/13/2011
Group Number: 1280700
SDG: DHR06
PO Number: 420671-04
Release Number: DHR06
State of Sample Origin: OH

Client Sample Description	Lancaster Labs (LLI) #
HGR-121211-EB01 Grab Water Sample	6497513
S01-SS03-0002-121211 Composite Soil Sample	6497514
S01-SS03-0002-121211 Matrix Spike Composite Soil	6497515
S01-SS03-0002-121211 MSD Composite Soil	6497516
S01-SS03-0002-121211 Duplicate Composite Soil	6497517
S01-SS03-0305-121211 Composite Soil Sample	6497518
S01-SS03-0810-121211 Composite Soil Sample	6497519
S01-SS03-1315-121211 Composite Soil Sample	6497520
S01-SS04-0002-121211 Composite Soil Sample	6497521
S01-SS04-0305-121211 Composite Soil Sample	6497522
S01-SS04-0810-121211 Composite Soil Sample	6497523
HGR-121211-FD01 Composite Soil Sample	6497524
S01-SS05-0002-121211 Composite Soil Sample	6497525
S01-SS05-0305-121211 Composite Soil Sample	6497526
S01-SS05-0810-121211 Composite Soil Sample	6497527
S01-SS05-2123-121211 Composite Soil Sample	6497528
S01-SS06-0002-121211 Composite Soil Sample	6497529
S01-SS06-0305-121211 Composite Soil Sample	6497530
S01-SS06-0810-121211 Composite Soil Sample	6497531
S01-SS06-1315-121211 Composite Soil Sample	6497532
S01-SS09-0002-121211 Composite Soil Sample	6497533

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Lancaster Laboratories

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Analysis Report

ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Shane Lowe
ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Rachel Grand
1 COPY TO	Data Package Group	

Questions? Contact your Client Services Representative
Wendy A Kozma at (717) 656-2300 Ext. 1522

Respectfully Submitted,

Lawrence M. Taylor
Senior Specialist

Lancaster Laboratories

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Analysis Report

Sample Description: HGR-121211-EB01 Grab Water Sample
Dow Hanging Rock, OH

LLI Sample # WW 6497513
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 17:40 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

-EB01 SDG#: DHR06-01EB

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**		**ug/l**	
04678	Acenaphthene	83-32-9	0.1	U	0.1	1
04678	Acenaphthylene	208-96-8	0.1	U	0.1	1
04678	Anthracene	120-12-7	0.1	U	0.1	1
04678	Benzo(a)anthracene	56-55-3	0.1	U	0.1	1
04678	Benzo(a)pyrene	50-32-8	0.1	U	0.1	1
04678	Benzo(b)fluoranthene	205-99-2	0.1	U	0.1	1
04678	Benzo(g,h,i)perylene	191-24-2	0.1	U	0.1	1
04678	Benzo(k)fluoranthene	207-08-9	0.1	U	0.1	1
04678	Benzyl alcohol	100-51-6	5	U	5	1
04678	1,1'-Biphenyl	92-52-4	0.5	U	0.5	1
04678	4-Bromophenyl-phenylether	101-55-3	0.5	U	0.5	1
04678	Butylbenzylphthalate	85-68-7	2	U	2	1
04678	Di-n-butylphthalate	84-74-2	2	U	2	1
04678	Carbazole	86-74-8	0.5	U	0.5	1
04678	4-Chloro-3-methylphenol	59-50-7	0.5	U	0.5	1
04678	4-Chloroaniline	106-47-8	0.5	U	0.5	1
04678	bis(2-Chloroethoxy)methane	111-91-1	0.5	U	0.5	1
04678	bis(2-Chloroethyl)ether	111-44-4	0.5	U	0.5	1
04678	2-Chloronaphthalene	91-58-7	0.4	U	0.4	1
04678	2-Chlorophenol	95-57-8	0.5	U	0.5	1
04678	4-Chlorophenyl-phenylether	7005-72-3	0.5	U	0.5	1
04678	Chrysene	218-01-9	0.1	U	0.1	1
04678	Dibenz(a,h)anthracene	53-70-3	0.1	U	0.1	1
04678	Dibenzofuran	132-64-9	0.5	U	0.5	1
04678	3,3'-Dichlorobenzidine	91-94-1	2	U	2	1
04678	2,4-Dichlorophenol	120-83-2	0.5	U	0.5	1
04678	Diethylphthalate	84-66-2	2	U	2	1
04678	2,4-Dimethylphenol	105-67-9	0.5	U	0.5	1
04678	Dimethylphthalate	131-11-3	2	U	2	1
04678	4,6-Dinitro-2-methylphenol	534-52-1	5	U	5	1
04678	2,4-Dinitrophenol	51-28-5	10	U	10	1
04678	2,4-Dinitrotoluene	121-14-2	1	U	1	1
04678	2,6-Dinitrotoluene	606-20-2	0.5	U	0.5	1
04678	1,4-Dioxane	123-91-1	1	U	1	1
04678	bis(2-Ethylhexyl)phthalate	117-81-7	2	U	2	1
04678	Fluoranthene	206-44-0	0.1	U	0.1	1
04678	Fluorene	86-73-7	0.1	U	0.1	1
04678	Hexachlorobenzene	118-74-1	0.1	U	0.1	1
04678	Hexachlorocyclopentadiene	77-47-4	5	U	5	1
04678	Hexachloroethane	67-72-1	1	U	1	1
04678	Indeno(1,2,3-cd)pyrene	193-39-5	0.1	U	0.1	1
04678	Isophorone	78-59-1	0.5	U	0.5	1
04678	2-Methylnaphthalene	91-57-6	0.1	U	0.1	1
04678	2-Methylphenol	95-48-7	0.5	U	0.5	1
04678	4-Methylphenol	106-44-5	0.5	U	0.5	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
04678	2-Nitroaniline	88-74-4	0.5	U	0.5	1
04678	3-Nitroaniline	99-09-2	0.5	U	0.5	1
04678	4-Nitroaniline	100-01-6	0.5	U	0.5	1

Sample Description: HGR-121211-EB01 Grab Water Sample
Dow Hanging Rock, OH

LLI Sample # WW 6497513
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 17:40 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

-EB01 SDG#: DHR06-01EB

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**		**ug/l**	
04678	Nitrobenzene	98-95-3	0.5	U	0.5	1
04678	2-Nitrophenol	88-75-5	0.5	U	0.5	1
04678	4-Nitrophenol	100-02-7	10	U	10	1
04678	N-Nitroso-di-n-propylamine	621-64-7	0.5	U	0.5	1
04678	N-Nitrosodiphenylamine	86-30-6	0.5	U	0.5	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
04678	Di-n-octylphthalate	117-84-0	2	U	2	1
04678	Pentachlorophenol	87-86-5	1	U	1	1
04678	Phenanthrene	85-01-8	0.1	U	0.1	1
04678	Phenol	108-95-2	0.5	U	0.5	1
04678	Pyrene	129-00-0	0.1	U	0.1	1
04678	2,4,5-Trichlorophenol	95-95-4	0.5	U	0.5	1
04678	2,4,6-Trichlorophenol	88-06-2	0.5	U	0.5	1
Metals	**SW-846 6010B**		**mg/l**		**mg/l**	
07046	Barium	7440-39-3	0.00026	U	0.00026	1
07049	Cadmium	7440-43-9	0.00027	U	0.00027	1
07051	Chromium	7440-47-3	0.0011	U	0.0011	1
07055	Lead	7439-92-1	0.0022	U	0.0022	1
07036	Selenium	7782-49-2	0.0069	U	0.0069	1
07066	Silver	7440-22-4	0.00091	U	0.00091	1
	SW-846 6020		**mg/l**		**mg/l**	
06025	Arsenic	7440-38-2	0.00095	U	0.00095	1
	SW-846 7470A		**mg/l**		**mg/l**	
00259	Mercury	7439-97-6	0.000026	U	0.000026	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	11349WAB026	12/16/2011 07:26	Brian K Graham	1
00813	BNA Water Extraction	SW-846 3510C	1	11349WAB026	12/15/2011 15:30	Nicholas W Shroyer	1
07046	Barium	SW-846 6010B	1	113485705002	12/19/2011 02:21	Tara L Snyder	1
07049	Cadmium	SW-846 6010B	1	113485705002	12/19/2011 02:21	Tara L Snyder	1
07051	Chromium	SW-846 6010B	1	113485705002	12/19/2011 02:21	Tara L Snyder	1
07055	Lead	SW-846 6010B	1	113485705002	12/19/2011 02:21	Tara L Snyder	1
07036	Selenium	SW-846 6010B	1	113485705002	12/19/2011 02:21	Tara L Snyder	1
07066	Silver	SW-846 6010B	1	113485705002	12/19/2011 02:21	Tara L Snyder	1

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Sample Description: HGR-121211-EB01 Grab Water Sample
Dow Hanging Rock, OH

LLI Sample # WW 6497513
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 17:40 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

-EB01 SDG#: DHR06-01EB

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	SW-846 6020	1	113486050002A	12/16/2011 06:38	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	113495713003	12/19/2011 08:16	Damary Valentin	1
05705	WW/TL SW 846 ICP Digest (tot)	SW-846 3010A	1	113485705002	12/14/2011 20:30	Annamaria Stipkovits	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	113486050002	12/15/2011 09:10	Denise K Conners	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	113495713003	12/16/2011 09:00	Damary Valentin	1

Lancaster Laboratories

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Analysis Report

Sample Description: S01-SS03-0002-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497514
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 09:55 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S3002 SDG#: DHR06-02BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	98		7	0.84
10949	Benzene	71-43-2	0.6	J	0.5	0.84
10949	Bromobenzene	108-86-1	1	U	1	0.84
10949	Bromochloromethane	74-97-5	1	U	1	0.84
10949	Bromodichloromethane	75-27-4	1	U	1	0.84
10949	Bromoform	75-25-2	1	U	1	0.84
10949	Bromomethane	74-83-9	2	U	2	0.84
10949	2-Butanone	78-93-3	4	U	4	0.84
10949	n-Butylbenzene	104-51-8	1	U	1	0.84
10949	sec-Butylbenzene	135-98-8	1	U	1	0.84
10949	tert-Butylbenzene	98-06-6	1	U	1	0.84
10949	Carbon Disulfide	75-15-0	1	U	1	0.84
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.84
10949	Chlorobenzene	108-90-7	1	U	1	0.84
10949	Chloroethane	75-00-3	2	U	2	0.84
10949	Chloroform	67-66-3	1	U	1	0.84
10949	Chloromethane	74-87-3	2	U	2	0.84
10949	2-Chlorotoluene	95-49-8	1	U	1	0.84
10949	4-Chlorotoluene	106-43-4	1	U	1	0.84
10949	Cyclohexane	110-82-7	1	U	1	0.84
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.84
10949	Dibromochloromethane	124-48-1	1	U	1	0.84
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.84
10949	Dibromomethane	74-95-3	1	U	1	0.84
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.84
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.84
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.84
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.84
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.84
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.84
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.84
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.84
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.84
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.84
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.84
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.84
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.84
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.84
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.84
10949	Ethylbenzene	100-41-4	1	U	1	0.84
10949	Freon 113	76-13-1	2	U	2	0.84
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.84
10949	2-Hexanone	591-78-6	3	U	3	0.84
10949	Isopropylbenzene	98-82-8	1	U	1	0.84
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.84
10949	Methyl Acetate	79-20-9	2	U	2	0.84
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.84
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.84
10949	Methylcyclohexane	108-87-2	1	U	1	0.84
10949	Methylene Chloride	75-09-2	2	U	2	0.84
10949	Naphthalene	91-20-3	1	U	1	0.84

Sample Description: S01-SS03-0002-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497514
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 09:55 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S3002 SDG#: DHR06-02BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.84
10949	Styrene	100-42-5	1	U	1	0.84
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.84
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.84
10949	Tetrachloroethene	127-18-4	1	J	1	0.84
10949	Toluene	108-88-3	1	U	1	0.84
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.84
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.84
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.84
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.84
10949	Trichloroethene	79-01-6	3	J	1	0.84
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.84
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.84
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.84
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.84
10949	Vinyl Acetate	108-05-4	2	U	2	0.84
10949	Vinyl Chloride	75-01-4	1	U	1	0.84
10949	m+p-Xylene	179601-23-1	1	U	1	0.84
10949	o-Xylene	95-47-6	1	U	1	0.84

The GC/MS volatile internal standard peak areas were outside the QC limits. A re-analysis was performed, and the matrix effect was confirmed.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	12	J	4	1
10727	Acenaphthylene	208-96-8	29		4	1
10727	Anthracene	120-12-7	19	J	4	1
10727	Benzo(a)anthracene	56-55-3	44		4	1
10727	Benzo(a)pyrene	50-32-8	49		4	1
10727	Benzo(b)fluoranthene	205-99-2	63		4	1
10727	Benzo(g,h,i)perylene	191-24-2	39		4	1
10727	Benzo(k)fluoranthene	207-08-9	31		4	1
10727	Benzyl alcohol	100-51-6	190	U	190	1
10727	1,1'-Biphenyl	92-52-4	25	J	19	1
10727	4-Bromophenyl-phenylether	101-55-3	19	U	19	1
10727	Butylbenzylphthalate	85-68-7	77	U	77	1
10727	Di-n-butylphthalate	84-74-2	77	U	77	1
10727	Carbazole	86-74-8	19	U	19	1
10727	4-Chloro-3-methylphenol	59-50-7	19	U	19	1
10727	4-Chloroaniline	106-47-8	19	U	19	1
10727	bis(2-Chloroethoxy)methane	111-91-1	19	U	19	1
10727	bis(2-Chloroethyl)ether	111-44-4	19	U	19	1
10727	2-Chloronaphthalene	91-58-7	8	U	8	1
10727	2-Chlorophenol	95-57-8	19	U	19	1
10727	4-Chlorophenyl-phenylether	7005-72-3	19	U	19	1
10727	Chrysene	218-01-9	55		4	1
10727	Dibenz(a,h)anthracene	53-70-3	9	J	4	1
10727	Dibenzofuran	132-64-9	19	U	19	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	19	U	19	1
10727	Diethylphthalate	84-66-2	77	U	77	1

Sample Description: S01-SS03-0002-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497514
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 09:55 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S3002 SDG#: DHR06-02BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dimethylphenol	105-67-9	19	U	19	1
10727	Dimethylphthalate	131-11-3	77	U	77	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	190	U	190	1
10727	2,4-Dinitrophenol	51-28-5	390	U	390	1
10727	2,4-Dinitrotoluene	121-14-2	77	U	77	1
10727	2,6-Dinitrotoluene	606-20-2	19	U	19	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	77	U	77	1
10727	Fluoranthene	206-44-0	100		4	1
10727	Fluorene	86-73-7	7	J	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	190	U	190	1
10727	Hexachloroethane	67-72-1	39	U	39	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	34		4	1
10727	Isophorone	78-59-1	19	U	19	1
10727	2-Methylnaphthalene	91-57-6	4	J	4	1
10727	2-Methylphenol	95-48-7	19	U	19	1
10727	4-Methylphenol	106-44-5	19	U	19	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	19	U	19	1
10727	3-Nitroaniline	99-09-2	77	U	77	1
10727	4-Nitroaniline	100-01-6	77	U	77	1
10727	Nitrobenzene	98-95-3	19	U	19	1
10727	2-Nitrophenol	88-75-5	19	U	19	1
10727	4-Nitrophenol	100-02-7	190	U	190	1
10727	N-Nitroso-di-n-propylamine	621-64-7	19	U	19	1
10727	N-Nitrosodiphenylamine	86-30-6	19	U	19	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	77	U	77	1
10727	Pentachlorophenol	87-86-5	39	U	39	1
10727	Phenanthrene	85-01-8	64		4	1
10727	Phenol	108-95-2	23	J	19	1
10727	Pyrene	129-00-0	79		4	1
10727	2,4,5-Trichlorophenol	95-95-4	19	U	19	1
10727	2,4,6-Trichlorophenol	88-06-2	19	U	19	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	127		0.0201	1
06949	Cadmium	7440-43-9	1.00		0.0223	1
06951	Chromium	7440-47-3	23.1		0.156	1
06955	Lead	7439-92-1	17.3		0.246	1
06936	Selenium	7782-49-2	0.759	U	0.759	1
06966	Silver	7440-22-4	0.0927	U	0.0927	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	11.4		0.0920	2

Lancaster Laboratories

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Analysis Report

Sample Description: S01-SS03-0002-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497514
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 09:55 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S3002 SDG#: DHR06-02BKG

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0131 J	0.0081	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	13.9	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	X113541AA	12/20/2011 05:39	Kathrine K Muramatsu	0.84
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134726425	12/13/2011 12:55	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134726425	12/13/2011 12:56	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134726425	12/13/2011 12:55	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11348SLC026	12/16/2011 14:28	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11348SLC026	12/14/2011 17:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	113485708002	12/19/2011 04:59	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	113485708002	12/19/2011 04:59	Tara L Snyder	1
06951	Chromium	SW-846 6010B	1	113485708002	12/19/2011 04:59	Tara L Snyder	1
06955	Lead	SW-846 6010B	1	113485708002	12/19/2011 04:59	Tara L Snyder	1
06936	Selenium	SW-846 6010B	1	113485708002	12/20/2011 04:01	Tara L Snyder	1
06966	Silver	SW-846 6010B	1	113485708002	12/19/2011 04:59	Tara L Snyder	1
06125	Arsenic	SW-846 6020	1	113481026002A	12/21/2011 09:45	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113485711003	12/16/2011 07:01	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113485708002	12/15/2011 10:28	James L Mertz	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113481026002	12/15/2011 11:07	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113485711003	12/15/2011 11:55	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11349820005A	12/15/2011 17:39	Scott W Freisher	1

Lancaster Laboratories

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Analysis Report

Sample Description: S01-SS03-0002-121211 Matrix Spike Composite Soil
Dow Hanging Rock, OH

LLI Sample # SW 6497515
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 09:55 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S3002 SDG#: DHR06-02MS

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	620	E	7	0.86
10949	Benzene	71-43-2	26		0.5	0.86
10949	Bromobenzene	108-86-1	16		1	0.86
10949	Bromochloromethane	74-97-5	6		1	0.86
10949	Bromodichloromethane	75-27-4	21		1	0.86
10949	Bromoform	75-25-2	1	J	1	0.86
10949	Bromomethane	74-83-9	15		2	0.86
10949	2-Butanone	78-93-3	360		4	0.86
10949	n-Butylbenzene	104-51-8	130		1	0.86
10949	sec-Butylbenzene	135-98-8	120		1	0.86
10949	tert-Butylbenzene	98-06-6	40		1	0.86
10949	Carbon Disulfide	75-15-0	31		1	0.86
10949	Carbon Tetrachloride	56-23-5	9		1	0.86
10949	Chlorobenzene	108-90-7	21		1	0.86
10949	Chloroethane	75-00-3	23		2	0.86
10949	Chloroform	67-66-3	22		1	0.86
10949	Chloromethane	74-87-3	36		2	0.86
10949	2-Chlorotoluene	95-49-8	56		1	0.86
10949	4-Chlorotoluene	106-43-4	50		1	0.86
10949	Cyclohexane	110-82-7	36		1	0.86
10949	1,2-Dibromo-3-chloropropane	96-12-8	170		2	0.86
10949	Dibromochloromethane	124-48-1	10		1	0.86
10949	1,2-Dibromoethane	106-93-4	24		1	0.86
10949	Dibromomethane	74-95-3	18		1	0.86
10949	1,2-Dichlorobenzene	95-50-1	20		1	0.86
10949	1,3-Dichlorobenzene	541-73-1	22		1	0.86
10949	1,4-Dichlorobenzene	106-46-7	23		1	0.86
10949	Dichlorodifluoromethane	75-71-8	22		2	0.86
10949	1,1-Dichloroethane	75-34-3	32		1	0.86
10949	1,2-Dichloroethane	107-06-2	32		1	0.86
10949	1,1-Dichloroethene	75-35-4	18		1	0.86
10949	cis-1,2-Dichloroethene	156-59-2	20		1	0.86
10949	trans-1,2-Dichloroethene	156-60-5	18		1	0.86
10949	1,2-Dichloropropane	78-87-5	31		1	0.86
10949	1,3-Dichloropropane	142-28-9	48		1	0.86
10949	2,2-Dichloropropane	594-20-7	24		1	0.86
10949	1,1-Dichloropropene	563-58-6	27		1	0.86
10949	cis-1,3-Dichloropropene	10061-01-5	23		1	0.86
10949	trans-1,3-Dichloropropene	10061-02-6	41		1	0.86
10949	Ethylbenzene	100-41-4	37		1	0.86
10949	Freon 113	76-13-1	18		2	0.86
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.86
10949	2-Hexanone	591-78-6	380		3	0.86
10949	Isopropylbenzene	98-82-8	38		1	0.86
10949	p-Isopropyltoluene	99-87-6	66		1	0.86
10949	Methyl Acetate	79-20-9	51		2	0.86
10949	Methyl Tertiary Butyl Ether	1634-04-4	27		0.5	0.86
10949	4-Methyl-2-pentanone	108-10-1	210		3	0.86
10949	Methylcyclohexane	108-87-2	21		1	0.86
10949	Methylene Chloride	75-09-2	22		2	0.86
10949	Naphthalene	91-20-3	30		1	0.86

Sample Description: S01-SS03-0002-121211 Matrix Spike Composite Soil
Dow Hanging Rock, OH

LLI Sample # SW 6497515
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 09:55 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S3002 SDG#: DHR06-02MS

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	160		1	0.86
10949	Styrene	100-42-5	24		1	0.86
10949	1,1,1,2-Tetrachloroethane	630-20-6	10		1	0.86
10949	1,1,2,2-Tetrachloroethane	79-34-5	180		1	0.86
10949	Tetrachloroethene	127-18-4	5		1	0.86
10949	Toluene	108-88-3	39		1	0.86
10949	1,2,3-Trichlorobenzene	87-61-6	2	J	1	0.86
10949	1,2,4-Trichlorobenzene	120-82-1	2	J	1	0.86
10949	1,1,1-Trichloroethane	71-55-6	18		1	0.86
10949	1,1,2-Trichloroethane	79-00-5	36		1	0.86
10949	Trichloroethene	79-01-6	33		1	0.86
10949	Trichlorofluoromethane	75-69-4	16		2	0.86
10949	1,2,3-Trichloropropane	96-18-4	99		1	0.86
10949	1,2,4-Trimethylbenzene	95-63-6	100		1	0.86
10949	1,3,5-Trimethylbenzene	108-67-8	100		1	0.86
10949	Vinyl Acetate	108-05-4	190		2	0.85
10949	Vinyl Chloride	75-01-4	33		1	0.86
10949	m+p-Xylene	179601-23-1	50		1	0.86
10949	o-Xylene	95-47-6	26		1	0.86
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	1,700		4	1
10727	Acenaphthylene	208-96-8	1,900		4	1
10727	Anthracene	120-12-7	1,800		4	1
10727	Benzo(a)anthracene	56-55-3	1,800		4	1
10727	Benzo(a)pyrene	50-32-8	1,800		4	1
10727	Benzo(b)fluoranthene	205-99-2	1,800		4	1
10727	Benzo(g,h,i)perylene	191-24-2	1,800		4	1
10727	Benzo(k)fluoranthene	207-08-9	1,700		4	1
10727	Benzyl alcohol	100-51-6	1,700		190	1
10727	1,1'-Biphenyl	92-52-4	1,700		19	1
10727	4-Bromophenyl-phenylether	101-55-3	1,800		19	1
10727	Butylbenzylphthalate	85-68-7	1,800		77	1
10727	Di-n-butylphthalate	84-74-2	1,800		77	1
10727	Carbazole	86-74-8	1,700		19	1
10727	4-Chloro-3-methylphenol	59-50-7	1,600		19	1
10727	4-Chloroaniline	106-47-8	1,400		19	1
10727	bis(2-Chloroethoxy)methane	111-91-1	1,600		19	1
10727	bis(2-Chloroethyl)ether	111-44-4	1,600		19	1
10727	2-Chloronaphthalene	91-58-7	1,900		8	1
10727	2-Chlorophenol	95-57-8	1,700		19	1
10727	4-Chlorophenyl-phenylether	7005-72-3	1,700		19	1
10727	Chrysene	218-01-9	1,800		4	1
10727	Dibenz(a,h)anthracene	53-70-3	1,800		4	1
10727	Dibenzofuran	132-64-9	1,700		19	1
10727	3,3'-Dichlorobenzidine	91-94-1	1,700		120	1
10727	2,4-Dichlorophenol	120-83-2	1,800		19	1
10727	Diethylphthalate	84-66-2	1,700		77	1
10727	2,4-Dimethylphenol	105-67-9	1,600		19	1
10727	Dimethylphthalate	131-11-3	1,800		77	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	760		190	1

Sample Description: S01-SS03-0002-121211 Matrix Spike Composite Soil
Dow Hanging Rock, OH

LLI Sample # SW 6497515
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 09:55 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S3002 SDG#: DHR06-02MS

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	1,100	J	390	1
10727	2,4-Dinitrotoluene	121-14-2	1,700		77	1
10727	2,6-Dinitrotoluene	606-20-2	1,800		19	1
10727	1,4-Dioxane	123-91-1	880		120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	1,800		77	1
10727	Fluoranthene	206-44-0	1,900		4	1
10727	Fluorene	86-73-7	1,700		4	1
10727	Hexachlorobenzene	118-74-1	1,700		4	1
10727	Hexachlorocyclopentadiene	77-47-4	1,100		190	1
10727	Hexachloroethane	67-72-1	1,500		39	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	1,900		4	1
10727	Isophorone	78-59-1	1,600		19	1
10727	2-Methylnaphthalene	91-57-6	1,700		4	1
10727	2-Methylphenol	95-48-7	1,600		19	1
10727	4-Methylphenol	106-44-5	1,600		19	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	1,900		19	1
10727	3-Nitroaniline	99-09-2	1,800		77	1
10727	4-Nitroaniline	100-01-6	1,500		77	1
10727	Nitrobenzene	98-95-3	1,700		19	1
10727	2-Nitrophenol	88-75-5	1,700		19	1
10727	4-Nitrophenol	100-02-7	1,400		190	1
10727	N-Nitroso-di-n-propylamine	621-64-7	1,400		19	1
10727	N-Nitrosodiphenylamine	86-30-6	1,900		19	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	1,800		77	1
10727	Pentachlorophenol	87-86-5	1,500		39	1
10727	Phenanthrene	85-01-8	1,700		4	1
10727	Phenol	108-95-2	1,500		19	1
10727	Pyrene	129-00-0	1,800		4	1
10727	2,4,5-Trichlorophenol	95-95-4	1,800		19	1
10727	2,4,6-Trichlorophenol	88-06-2	1,900		19	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	432		0.0205	1
06949	Cadmium	7440-43-9	6.14		0.0228	1
06951	Chromium	7440-47-3	42.5		0.159	1
06955	Lead	7439-92-1	29.9		0.251	1
06936	Selenium	7782-49-2	18.4		0.774	1
06966	Silver	7440-22-4	5.62		0.0945	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	14.0		0.0929	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.207		0.0078	1

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Analysis Report

Sample Description: S01-SS03-0002-121211 Matrix Spike Composite Soil
Dow Hanging Rock, OH

LLI Sample # SW 6497515
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 09:55 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S3002 SDG#: DHR06-02MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00118	Moisture	n.a.	13.9	0.50	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	X113541AA	12/20/2011 06:01	Kathrine K Muramatsu	0.86
10949	8260 Ext. Soil Master	SW-846 8260B	1	X113541AA	12/20/2011 06:47	Kathrine K Muramatsu	0.85
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134726425	12/13/2011 12:58	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134726425	12/13/2011 12:58	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134726425	12/13/2011 12:58	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11348SLC026	12/16/2011 14:52	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11348SLC026	12/14/2011 17:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	113485708002	12/19/2011 05:11	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	113485708002	12/19/2011 05:11	Tara L Snyder	1
06951	Chromium	SW-846 6010B	1	113485708002	12/19/2011 05:11	Tara L Snyder	1
06955	Lead	SW-846 6010B	1	113485708002	12/19/2011 05:11	Tara L Snyder	1
06936	Selenium	SW-846 6010B	1	113485708002	12/20/2011 04:14	Tara L Snyder	1
06966	Silver	SW-846 6010B	1	113485708002	12/19/2011 05:11	Tara L Snyder	1
06125	Arsenic	SW-846 6020	1	113481026002A	12/21/2011 09:50	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113485711003	12/16/2011 07:04	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113485708002	12/15/2011 10:28	James L Mertz	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113481026002	12/15/2011 11:07	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113485711003	12/15/2011 11:55	James L Mertz	1
00118	Moisture	SM20 2540 G	1	11349820005A	12/15/2011 17:39	Scott W Freisher	1

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Analysis Report

Sample Description: S01-SS03-0002-121211 MSD Composite Soil
Dow Hanging Rock, OH

LLI Sample # SW 6497516
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 09:55 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S3002 SDG#: DHR06-02MSD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	570		7	0.88
10949	Benzene	71-43-2	28		0.5	0.88
10949	Bromobenzene	108-86-1	19		1	0.88
10949	Bromochloromethane	74-97-5	6		1	0.88
10949	Bromodichloromethane	75-27-4	23		1	0.88
10949	Bromoform	75-25-2	2	J	1	0.88
10949	Bromomethane	74-83-9	16		2	0.88
10949	2-Butanone	78-93-3	370		4	0.88
10949	n-Butylbenzene	104-51-8	140		1	0.88
10949	sec-Butylbenzene	135-98-8	120		1	0.88
10949	tert-Butylbenzene	98-06-6	46		1	0.88
10949	Carbon Disulfide	75-15-0	30		1	0.88
10949	Carbon Tetrachloride	56-23-5	10		1	0.88
10949	Chlorobenzene	108-90-7	24		1	0.88
10949	Chloroethane	75-00-3	26		2	0.88
10949	Chloroform	67-66-3	25		1	0.88
10949	Chloromethane	74-87-3	38		2	0.88
10949	2-Chlorotoluene	95-49-8	66		1	0.88
10949	4-Chlorotoluene	106-43-4	60		1	0.88
10949	Cyclohexane	110-82-7	40		1	0.88
10949	1,2-Dibromo-3-chloropropane	96-12-8	230		2	0.88
10949	Dibromochloromethane	124-48-1	13		1	0.88
10949	1,2-Dibromoethane	106-93-4	30		1	0.88
10949	Dibromomethane	74-95-3	20		1	0.88
10949	1,2-Dichlorobenzene	95-50-1	27		1	0.88
10949	1,3-Dichlorobenzene	541-73-1	28		1	0.88
10949	1,4-Dichlorobenzene	106-46-7	29		1	0.88
10949	Dichlorodifluoromethane	75-71-8	22		2	0.88
10949	1,1-Dichloroethane	75-34-3	35		1	0.88
10949	1,2-Dichloroethane	107-06-2	36		1	0.88
10949	1,1-Dichloroethene	75-35-4	21		1	0.88
10949	cis-1,2-Dichloroethene	156-59-2	20		1	0.88
10949	trans-1,2-Dichloroethene	156-60-5	20		1	0.88
10949	1,2-Dichloropropane	78-87-5	34		1	0.88
10949	1,3-Dichloropropane	142-28-9	55		1	0.88
10949	2,2-Dichloropropane	594-20-7	27		1	0.88
10949	1,1-Dichloropropene	563-58-6	30		1	0.88
10949	cis-1,3-Dichloropropene	10061-01-5	27		1	0.88
10949	trans-1,3-Dichloropropene	10061-02-6	49		1	0.88
10949	Ethylbenzene	100-41-4	41		1	0.88
10949	Freon 113	76-13-1	19		2	0.88
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.88
10949	2-Hexanone	591-78-6	470		3	0.88
10949	Isopropylbenzene	98-82-8	30		1	0.88
10949	p-Isopropyltoluene	99-87-6	76		1	0.88
10949	Methyl Acetate	79-20-9	56		2	0.88
10949	Methyl Tertiary Butyl Ether	1634-04-4	29		0.5	0.88
10949	4-Methyl-2-pentanone	108-10-1	230		3	0.88
10949	Methylcyclohexane	108-87-2	25		1	0.88
10949	Methylene Chloride	75-09-2	25		2	0.88
10949	Naphthalene	91-20-3	50		1	0.88

Sample Description: S01-SS03-0002-121211 MSD Composite Soil
Dow Hanging Rock, OH

LLI Sample # SW 6497516
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 09:55 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S3002 SDG#: DHR06-02MSD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	180		1	0.88
10949	Styrene	100-42-5	26		1	0.88
10949	1,1,1,2-Tetrachloroethane	630-20-6	12		1	0.88
10949	1,1,2,2-Tetrachloroethane	79-34-5	220		1	0.88
10949	Tetrachloroethene	127-18-4	4	J	1	0.88
10949	Toluene	108-88-3	41		1	0.88
10949	1,2,3-Trichlorobenzene	87-61-6	4	J	1	0.88
10949	1,2,4-Trichlorobenzene	120-82-1	4	J	1	0.88
10949	1,1,1-Trichloroethane	71-55-6	21		1	0.88
10949	1,1,2-Trichloroethane	79-00-5	38		1	0.88
10949	Trichloroethene	79-01-6	23		1	0.88
10949	Trichlorofluoromethane	75-69-4	17		2	0.88
10949	1,2,3-Trichloropropane	96-18-4	120		1	0.88
10949	1,2,4-Trimethylbenzene	95-63-6	120		1	0.88
10949	1,3,5-Trimethylbenzene	108-67-8	120		1	0.88
10949	Vinyl Acetate	108-05-4	180		2	0.78
10949	Vinyl Chloride	75-01-4	34		1	0.88
10949	m+p-Xylene	179601-23-1	56		1	0.88
10949	o-Xylene	95-47-6	29		1	0.88
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	1,700		4	1
10727	Acenaphthylene	208-96-8	1,900		4	1
10727	Anthracene	120-12-7	1,800		4	1
10727	Benzo(a)anthracene	56-55-3	1,800		4	1
10727	Benzo(a)pyrene	50-32-8	1,800		4	1
10727	Benzo(b)fluoranthene	205-99-2	1,800		4	1
10727	Benzo(g,h,i)perylene	191-24-2	1,800		4	1
10727	Benzo(k)fluoranthene	207-08-9	1,600		4	1
10727	Benzyl alcohol	100-51-6	1,600		190	1
10727	1,1'-Biphenyl	92-52-4	1,700		19	1
10727	4-Bromophenyl-phenylether	101-55-3	1,800		19	1
10727	Butylbenzylphthalate	85-68-7	1,700		77	1
10727	Di-n-butylphthalate	84-74-2	1,800		77	1
10727	Carbazole	86-74-8	1,700		19	1
10727	4-Chloro-3-methylphenol	59-50-7	1,600		19	1
10727	4-Chloroaniline	106-47-8	1,400		19	1
10727	bis(2-Chloroethoxy)methane	111-91-1	1,600		19	1
10727	bis(2-Chloroethyl)ether	111-44-4	1,600		19	1
10727	2-Chloronaphthalene	91-58-7	1,900		8	1
10727	2-Chlorophenol	95-57-8	1,700		19	1
10727	4-Chlorophenyl-phenylether	7005-72-3	1,700		19	1
10727	Chrysene	218-01-9	1,800		4	1
10727	Dibenz(a,h)anthracene	53-70-3	1,800		4	1
10727	Dibenzofuran	132-64-9	1,600		19	1
10727	3,3'-Dichlorobenzidine	91-94-1	1,700		120	1
10727	2,4-Dichlorophenol	120-83-2	1,700		19	1
10727	Diethylphthalate	84-66-2	1,700		77	1
10727	2,4-Dimethylphenol	105-67-9	1,600		19	1
10727	Dimethylphthalate	131-11-3	1,700		77	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	580		190	1

Sample Description: S01-SS03-0002-121211 MSD Composite Soil
Dow Hanging Rock, OH

LLI Sample # SW 6497516
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 09:55 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S3002 SDG#: DHR06-02MSD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	870	J	390	1
10727	2,4-Dinitrotoluene	121-14-2	1,700		77	1
10727	2,6-Dinitrotoluene	606-20-2	1,800		19	1
10727	1,4-Dioxane	123-91-1	900		120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	1,800		77	1
10727	Fluoranthene	206-44-0	1,900		4	1
10727	Fluorene	86-73-7	1,600		4	1
10727	Hexachlorobenzene	118-74-1	1,700		4	1
10727	Hexachlorocyclopentadiene	77-47-4	530	J	190	1
10727	Hexachloroethane	67-72-1	1,500		39	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	1,800		4	1
10727	Isophorone	78-59-1	1,600		19	1
10727	2-Methylnaphthalene	91-57-6	1,600		4	1
10727	2-Methylphenol	95-48-7	1,600		19	1
10727	4-Methylphenol	106-44-5	1,500		19	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	1,900		19	1
10727	3-Nitroaniline	99-09-2	1,800		77	1
10727	4-Nitroaniline	100-01-6	1,500		77	1
10727	Nitrobenzene	98-95-3	1,700		19	1
10727	2-Nitrophenol	88-75-5	1,800		19	1
10727	4-Nitrophenol	100-02-7	1,400		190	1
10727	N-Nitroso-di-n-propylamine	621-64-7	1,400		19	1
10727	N-Nitrosodiphenylamine	86-30-6	1,900		19	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	1,800		77	1
10727	Pentachlorophenol	87-86-5	1,500		39	1
10727	Phenanthrene	85-01-8	1,700		4	1
10727	Phenol	108-95-2	1,500		19	1
10727	Pyrene	129-00-0	1,700		4	1
10727	2,4,5-Trichlorophenol	95-95-4	1,800		19	1
10727	2,4,6-Trichlorophenol	88-06-2	1,900		19	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	495		0.0205	1
06949	Cadmium	7440-43-9	7.13		0.0228	1
06951	Chromium	7440-47-3	43.5		0.159	1
06955	Lead	7439-92-1	40.8		0.251	1
06936	Selenium	7782-49-2	20.1		0.774	1
06966	Silver	7440-22-4	5.54		0.0945	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	11.4		0.0929	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.202		0.0079	1

Lancaster Laboratories

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Analysis Report

Sample Description: S01-SS03-0002-121211 MSD Composite Soil
Dow Hanging Rock, OH

LLI Sample # SW 6497516
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 09:55 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S3002 SDG#: DHR06-02MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00118	Moisture	n.a.	13.9	0.50	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	X113541AA	12/20/2011 06:24	Kathrine K Muramatsu	0.88
10949	8260 Ext. Soil Master	SW-846 8260B	1	X113541AA	12/20/2011 07:21	Kathrine K Muramatsu	0.78
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134726425	12/13/2011 13:00	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134726425	12/13/2011 13:01	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134726425	12/13/2011 13:00	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11348SLC026	12/16/2011 15:17	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11348SLC026	12/14/2011 17:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	113485708002	12/19/2011 05:15	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	113485708002	12/19/2011 05:15	Tara L Snyder	1
06951	Chromium	SW-846 6010B	1	113485708002	12/19/2011 05:15	Tara L Snyder	1
06955	Lead	SW-846 6010B	1	113485708002	12/19/2011 05:15	Tara L Snyder	1
06936	Selenium	SW-846 6010B	1	113485708002	12/20/2011 04:18	Tara L Snyder	1
06966	Silver	SW-846 6010B	1	113485708002	12/19/2011 05:15	Tara L Snyder	1
06125	Arsenic	SW-846 6020	1	113481026002A	12/21/2011 09:51	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113485711003	12/16/2011 07:05	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113485708002	12/15/2011 10:28	James L Mertz	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113481026002	12/15/2011 11:07	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113485711003	12/15/2011 11:55	James L Mertz	1
00118	Moisture	SM20 2540 G	1	11349820005A	12/15/2011 17:39	Scott W Freisher	1

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Analysis Report

Sample Description: S01-SS03-0002-121211 Duplicate Composite Soil
Dow Hanging Rock, OH

LLI Sample # SW 6497517
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 09:55 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S3002 SDG#: DHR06-02DUP

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals		**SW-846 6010B**	**mg/kg**	**mg/kg**	
06946	Barium	7440-39-3	135	0.0205	1
06949	Cadmium	7440-43-9	1.13	0.0228	1
06951	Chromium	7440-47-3	23.7	0.159	1
06955	Lead	7439-92-1	20.5	0.251	1
06936	Selenium	7782-49-2	0.861 J	0.774	1
06966	Silver	7440-22-4	0.0945 U	0.0945	1
		SW-846 6020	**mg/kg**	**mg/kg**	
06125	Arsenic	7440-38-2	13.2	0.0911	2
		SW-846 7471A	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0191 J	0.0081	1
Wet Chemistry		**SM20 2540 G**	**%**	**%**	
00118	Moisture	n.a.	13.9	0.50	1
00121	Moisture Duplicate	n.a.	14.7	0.50	1

The duplicate moisture value is provided to assess the precision of the moisture test. For comparability purposes, the initial moisture determination is the value used to perform dry weight calculations.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06946	Barium	SW-846 6010B	1	113485708002	12/19/2011 05:07	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	113485708002	12/19/2011 05:07	Tara L Snyder	1
06951	Chromium	SW-846 6010B	1	113485708002	12/19/2011 05:07	Tara L Snyder	1
06955	Lead	SW-846 6010B	1	113485708002	12/19/2011 05:07	Tara L Snyder	1
06936	Selenium	SW-846 6010B	1	113485708002	12/20/2011 04:10	Tara L Snyder	1
06966	Silver	SW-846 6010B	1	113485708002	12/19/2011 05:07	Tara L Snyder	1
06125	Arsenic	SW-846 6020	1	113481026002A	12/21/2011 09:48	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113485711003	12/16/2011 07:03	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113485708002	12/15/2011 10:28	James L Mertz	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113481026002	12/15/2011 11:07	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113485711003	12/15/2011 11:55	James L Mertz	1
00118	Moisture	SM20 2540 G	1	11349820005A	12/15/2011 17:39	Scott W Freisher	1
00121	Moisture Duplicate	SM20 2540 G	1	11349820005A	12/15/2011 17:39	Scott W Freisher	1

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Analysis Report

Sample Description: S01-SS03-0305-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497518
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 10:00 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S3305 SDG#: DHR06-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	19	J	7	0.84
10949	Benzene	71-43-2	0.5	U	0.5	0.84
10949	Bromobenzene	108-86-1	1	U	1	0.84
10949	Bromochloromethane	74-97-5	1	U	1	0.84
10949	Bromodichloromethane	75-27-4	1	U	1	0.84
10949	Bromoform	75-25-2	1	U	1	0.84
10949	Bromomethane	74-83-9	2	U	2	0.84
10949	2-Butanone	78-93-3	4	U	4	0.84
10949	n-Butylbenzene	104-51-8	1	U	1	0.84
10949	sec-Butylbenzene	135-98-8	1	U	1	0.84
10949	tert-Butylbenzene	98-06-6	1	U	1	0.84
10949	Carbon Disulfide	75-15-0	1	U	1	0.84
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.84
10949	Chlorobenzene	108-90-7	1	U	1	0.84
10949	Chloroethane	75-00-3	2	U	2	0.84
10949	Chloroform	67-66-3	1	U	1	0.84
10949	Chloromethane	74-87-3	2	U	2	0.84
10949	2-Chlorotoluene	95-49-8	1	U	1	0.84
10949	4-Chlorotoluene	106-43-4	1	U	1	0.84
10949	Cyclohexane	110-82-7	1	U	1	0.84
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.84
10949	Dibromochloromethane	124-48-1	1	U	1	0.84
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.84
10949	Dibromomethane	74-95-3	1	U	1	0.84
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.84
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.84
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.84
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.84
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.84
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.84
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.84
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.84
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.84
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.84
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.84
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.84
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.84
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.84
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.84
10949	Ethylbenzene	100-41-4	1	U	1	0.84
10949	Freon 113	76-13-1	2	U	2	0.84
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.84
10949	2-Hexanone	591-78-6	3	U	3	0.84
10949	Isopropylbenzene	98-82-8	1	U	1	0.84
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.84
10949	Methyl Acetate	79-20-9	2	U	2	0.84
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.84
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.84
10949	Methylcyclohexane	108-87-2	1	U	1	0.84
10949	Methylene Chloride	75-09-2	2	U	2	0.84
10949	Naphthalene	91-20-3	1	U	1	0.84

Sample Description: S01-SS03-0305-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497518
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 10:00 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S3305 SDG#: DHR06-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.84
10949	Styrene	100-42-5	1	U	1	0.84
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.84
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.84
10949	Tetrachloroethene	127-18-4	17		1	0.84
10949	Toluene	108-88-3	1	U	1	0.84
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.84
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.84
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.84
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.84
10949	Trichloroethene	79-01-6	2	J	1	0.84
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.84
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.84
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.84
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.84
10949	Vinyl Acetate	108-05-4	2	U	2	0.84
10949	Vinyl Chloride	75-01-4	1	U	1	0.84
10949	m+p-Xylene	179601-23-1	1	U	1	0.84
10949	o-Xylene	95-47-6	1	U	1	0.84
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	20	U	20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	81	U	81	1
10727	Di-n-butylphthalate	84-74-2	81	U	81	1
10727	Carbazole	86-74-8	20	U	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	20	U	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1
10727	Diethylphthalate	84-66-2	81	U	81	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	81	U	81	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1

Sample Description: S01-SS03-0305-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497518
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 10:00 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S3305 SDG#: DHR06-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	410	U	410	1
10727	2,4-Dinitrotoluene	121-14-2	81	U	81	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	81	U	81	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	41	U	41	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	81	U	81	1
10727	4-Nitroaniline	100-01-6	81	U	81	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	81	U	81	1
10727	Pentachlorophenol	87-86-5	41	U	41	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	20	U	20	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	89.8		0.0217	1
06949	Cadmium	7440-43-9	0.988		0.0241	1
06951	Chromium	7440-47-3	22.5		0.169	1
06955	Lead	7439-92-1	14.1		0.265	1
06936	Selenium	7782-49-2	0.820	U	0.820	1
06966	Silver	7440-22-4	0.100	U	0.100	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	14.9		0.0946	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0183	J	0.0080	1

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Analysis Report

Sample Description: S01-SS03-0305-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497518
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 10:00 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S3305 SDG#: DHR06-03

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	17.9	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	X113541AA	12/20/2011 04:29	Kathrine K Muramatsu	0.84
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134726425	12/13/2011 13:02	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134726425	12/13/2011 13:03	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134726425	12/13/2011 13:02	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11348SLC026	12/16/2011 07:56	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11348SLC026	12/14/2011 17:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	113485708002	12/19/2011 05:22	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	113485708002	12/19/2011 05:22	Tara L Snyder	1
06951	Chromium	SW-846 6010B	1	113485708002	12/19/2011 05:22	Tara L Snyder	1
06955	Lead	SW-846 6010B	1	113485708002	12/19/2011 05:22	Tara L Snyder	1
06936	Selenium	SW-846 6010B	1	113485708002	12/19/2011 05:22	Tara L Snyder	1
06966	Silver	SW-846 6010B	1	113485708002	12/19/2011 05:22	Tara L Snyder	1
06125	Arsenic	SW-846 6020	1	113481026002A	12/21/2011 09:54	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113485711003	12/16/2011 07:06	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113485708002	12/15/2011 10:28	James L Mertz	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113481026002	12/15/2011 11:07	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113485711003	12/15/2011 11:55	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11349820005A	12/15/2011 17:39	Scott W Freisher	1

Lancaster Laboratories

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Analysis Report

Sample Description: S01-SS03-0810-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497519
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 10:05 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

3-810 SDG#: DHR06-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	28		8	0.92
10949	Benzene	71-43-2	0.5	U	0.5	0.92
10949	Bromobenzene	108-86-1	1	U	1	0.92
10949	Bromochloromethane	74-97-5	1	U	1	0.92
10949	Bromodichloromethane	75-27-4	1	U	1	0.92
10949	Bromoform	75-25-2	1	U	1	0.92
10949	Bromomethane	74-83-9	2	U	2	0.92
10949	2-Butanone	78-93-3	4	U	4	0.92
10949	n-Butylbenzene	104-51-8	1	U	1	0.92
10949	sec-Butylbenzene	135-98-8	1	U	1	0.92
10949	tert-Butylbenzene	98-06-6	1	U	1	0.92
10949	Carbon Disulfide	75-15-0	1	U	1	0.92
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.92
10949	Chlorobenzene	108-90-7	1	U	1	0.92
10949	Chloroethane	75-00-3	2	U	2	0.92
10949	Chloroform	67-66-3	1	U	1	0.92
10949	Chloromethane	74-87-3	2	U	2	0.92
10949	2-Chlorotoluene	95-49-8	1	U	1	0.92
10949	4-Chlorotoluene	106-43-4	1	U	1	0.92
10949	Cyclohexane	110-82-7	1	U	1	0.92
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.92
10949	Dibromochloromethane	124-48-1	1	U	1	0.92
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.92
10949	Dibromomethane	74-95-3	1	U	1	0.92
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.92
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.92
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.92
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.92
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.92
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.92
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.92
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.92
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.92
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.92
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.92
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.92
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.92
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.92
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.92
10949	Ethylbenzene	100-41-4	1	U	1	0.92
10949	Freon 113	76-13-1	2	U	2	0.92
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.92
10949	2-Hexanone	591-78-6	3	U	3	0.92
10949	Isopropylbenzene	98-82-8	1	U	1	0.92
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.92
10949	Methyl Acetate	79-20-9	2	U	2	0.92
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.92
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.92
10949	Methylcyclohexane	108-87-2	1	U	1	0.92
10949	Methylene Chloride	75-09-2	2	U	2	0.92
10949	Naphthalene	91-20-3	1	U	1	0.92

Sample Description: S01-SS03-0810-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497519
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 10:05 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

3-810 SDG#: DHR06-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.92
10949	Styrene	100-42-5	1	U	1	0.92
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.92
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.92
10949	Tetrachloroethene	127-18-4	4	J	1	0.92
10949	Toluene	108-88-3	1	U	1	0.92
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.92
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.92
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.92
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.92
10949	Trichloroethene	79-01-6	1	U	1	0.92
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.92
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.92
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.92
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.92
10949	Vinyl Acetate	108-05-4	2	U	2	0.92
10949	Vinyl Chloride	75-01-4	1	U	1	0.92
10949	m+p-Xylene	179601-23-1	1	U	1	0.92
10949	o-Xylene	95-47-6	1	U	1	0.92
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	20	U	20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	80	U	80	1
10727	Di-n-butylphthalate	84-74-2	80	U	80	1
10727	Carbazole	86-74-8	20	U	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	8	U	8	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	20	U	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1
10727	Diethylphthalate	84-66-2	80	U	80	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	80	U	80	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1

Sample Description: S01-SS03-0810-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497519
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 10:05 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

3-810 SDG#: DHR06-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	400	U	400	1
10727	2,4-Dinitrotoluene	121-14-2	80	U	80	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	80	U	80	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	40	U	40	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	80	U	80	1
10727	4-Nitroaniline	100-01-6	80	U	80	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	80	U	80	1
10727	Pentachlorophenol	87-86-5	40	U	40	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	20	U	20	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	56.1		0.0207	1
06949	Cadmium	7440-43-9	0.772		0.0230	1
06951	Chromium	7440-47-3	12.3		0.161	1
06955	Lead	7439-92-1	11.1		0.253	1
06936	Selenium	7782-49-2	0.783	U	0.783	1
06966	Silver	7440-22-4	0.0956	U	0.0956	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	9.26		0.0939	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0149	J	0.0081	1

Lancaster Laboratories

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Analysis Report

Sample Description: S01-SS03-0810-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497519
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 10:05 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

3-810 SDG#: DHR06-04

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	16.5	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	X113541AA	12/20/2011 04:53	Kathrine K Muramatsu	0.92
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134726425	12/13/2011 13:04	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134726425	12/13/2011 13:05	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134726425	12/13/2011 13:04	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11348SLC026	12/16/2011 08:21	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11348SLC026	12/14/2011 17:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	113485708002	12/19/2011 05:26	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	113485708002	12/19/2011 05:26	Tara L Snyder	1
06951	Chromium	SW-846 6010B	1	113485708002	12/19/2011 05:26	Tara L Snyder	1
06955	Lead	SW-846 6010B	1	113485708002	12/19/2011 05:26	Tara L Snyder	1
06936	Selenium	SW-846 6010B	1	113485708002	12/19/2011 05:26	Tara L Snyder	1
06966	Silver	SW-846 6010B	1	113485708002	12/19/2011 05:26	Tara L Snyder	1
06125	Arsenic	SW-846 6020	1	113481026002A	12/21/2011 09:56	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113485711003	12/16/2011 07:10	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113485708002	12/15/2011 10:28	James L Mertz	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113481026002	12/15/2011 11:07	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113485711003	12/15/2011 11:55	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11349820005A	12/15/2011 17:39	Scott W Freisher	1

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Analysis Report

Sample Description: S01-SS03-1315-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497520
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 10:10 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

13153 SDG#: DHR06-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	43		8	1.05
10949	Benzene	71-43-2	0.6	U	0.6	1.05
10949	Bromobenzene	108-86-1	1	U	1	1.05
10949	Bromochloromethane	74-97-5	1	U	1	1.05
10949	Bromodichloromethane	75-27-4	1	U	1	1.05
10949	Bromoform	75-25-2	1	U	1	1.05
10949	Bromomethane	74-83-9	2	U	2	1.05
10949	2-Butanone	78-93-3	7	J	4	1.05
10949	n-Butylbenzene	104-51-8	1	U	1	1.05
10949	sec-Butylbenzene	135-98-8	1	U	1	1.05
10949	tert-Butylbenzene	98-06-6	1	U	1	1.05
10949	Carbon Disulfide	75-15-0	1	U	1	1.05
10949	Carbon Tetrachloride	56-23-5	1	U	1	1.05
10949	Chlorobenzene	108-90-7	1	U	1	1.05
10949	Chloroethane	75-00-3	2	U	2	1.05
10949	Chloroform	67-66-3	1	U	1	1.05
10949	Chloromethane	74-87-3	2	U	2	1.05
10949	2-Chlorotoluene	95-49-8	1	U	1	1.05
10949	4-Chlorotoluene	106-43-4	1	U	1	1.05
10949	Cyclohexane	110-82-7	1	U	1	1.05
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	1.05
10949	Dibromochloromethane	124-48-1	1	U	1	1.05
10949	1,2-Dibromoethane	106-93-4	1	U	1	1.05
10949	Dibromomethane	74-95-3	1	U	1	1.05
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	1.05
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	1.05
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	1.05
10949	Dichlorodifluoromethane	75-71-8	2	U	2	1.05
10949	1,1-Dichloroethane	75-34-3	1	U	1	1.05
10949	1,2-Dichloroethane	107-06-2	1	U	1	1.05
10949	1,1-Dichloroethene	75-35-4	1	U	1	1.05
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	1.05
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	1.05
10949	1,2-Dichloropropane	78-87-5	1	U	1	1.05
10949	1,3-Dichloropropane	142-28-9	1	U	1	1.05
10949	2,2-Dichloropropane	594-20-7	1	U	1	1.05
10949	1,1-Dichloropropene	563-58-6	1	U	1	1.05
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	1.05
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	1.05
10949	Ethylbenzene	100-41-4	1	U	1	1.05
10949	Freon 113	76-13-1	2	U	2	1.05
10949	Hexachlorobutadiene	87-68-3	2	U	2	1.05
10949	2-Hexanone	591-78-6	3	U	3	1.05
10949	Isopropylbenzene	98-82-8	1	U	1	1.05
10949	p-Isopropyltoluene	99-87-6	1	U	1	1.05
10949	Methyl Acetate	79-20-9	2	U	2	1.05
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.6	U	0.6	1.05
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	1.05
10949	Methylcyclohexane	108-87-2	1	U	1	1.05
10949	Methylene Chloride	75-09-2	2	U	2	1.05
10949	Naphthalene	91-20-3	1	U	1	1.05

Sample Description: S01-SS03-1315-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497520
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 10:10 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

13153 SDG#: DHR06-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	1.05
10949	Styrene	100-42-5	1	U	1	1.05
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	1.05
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	1.05
10949	Tetrachloroethene	127-18-4	3	J	1	1.05
10949	Toluene	108-88-3	1	U	1	1.05
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	1.05
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	1.05
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	1.05
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	1.05
10949	Trichloroethene	79-01-6	1	U	1	1.05
10949	Trichlorofluoromethane	75-69-4	2	U	2	1.05
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	1.05
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	1.05
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	1.05
10949	Vinyl Acetate	108-05-4	2	U	2	1.05
10949	Vinyl Chloride	75-01-4	1	U	1	1.05
10949	m+p-Xylene	179601-23-1	1	U	1	1.05
10949	o-Xylene	95-47-6	1	U	1	1.05

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: carbon disulfide; 1,2-dichloropropane and cis-1,3-dichloropropene.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	180	U	180	1
10727	1,1'-Biphenyl	92-52-4	18	U	18	1
10727	4-Bromophenyl-phenylether	101-55-3	18	U	18	1
10727	Butylbenzylphthalate	85-68-7	70	U	70	1
10727	Di-n-butylphthalate	84-74-2	70	U	70	1
10727	Carbazole	86-74-8	18	U	18	1
10727	4-Chloro-3-methylphenol	59-50-7	18	U	18	1
10727	4-Chloroaniline	106-47-8	18	U	18	1
10727	bis(2-Chloroethoxy)methane	111-91-1	18	U	18	1
10727	bis(2-Chloroethyl)ether	111-44-4	18	U	18	1
10727	2-Chloronaphthalene	91-58-7	7	U	7	1
10727	2-Chlorophenol	95-57-8	18	U	18	1
10727	4-Chlorophenyl-phenylether	7005-72-3	18	U	18	1
10727	Chrysene	218-01-9	4	J	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	18	U	18	1
10727	3,3'-Dichlorobenzidine	91-94-1	110	U	110	1

Sample Description: S01-SS03-1315-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497520
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 10:10 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

13153 SDG#: DHR06-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dichlorophenol	120-83-2	18	U	18	1
10727	Diethylphthalate	84-66-2	70	U	70	1
10727	2,4-Dimethylphenol	105-67-9	18	U	18	1
10727	Dimethylphthalate	131-11-3	70	U	70	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	180	U	180	1
10727	2,4-Dinitrophenol	51-28-5	350	U	350	1
10727	2,4-Dinitrotoluene	121-14-2	70	U	70	1
10727	2,6-Dinitrotoluene	606-20-2	18	U	18	1
10727	1,4-Dioxane	123-91-1	110	U	110	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	70	U	70	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	180	U	180	1
10727	Hexachloroethane	67-72-1	35	U	35	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	18	U	18	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	18	U	18	1
10727	4-Methylphenol	106-44-5	18	U	18	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	18	U	18	1
10727	3-Nitroaniline	99-09-2	70	U	70	1
10727	4-Nitroaniline	100-01-6	70	U	70	1
10727	Nitrobenzene	98-95-3	18	U	18	1
10727	2-Nitrophenol	88-75-5	18	U	18	1
10727	4-Nitrophenol	100-02-7	180	U	180	1
10727	N-Nitroso-di-n-propylamine	621-64-7	18	U	18	1
10727	N-Nitrosodiphenylamine	86-30-6	18	U	18	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	70	U	70	1
10727	Pentachlorophenol	87-86-5	35	U	35	1
10727	Phenanthrene	85-01-8	16	J	4	1
10727	Phenol	108-95-2	18	U	18	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	18	U	18	1
10727	2,4,6-Trichlorophenol	88-06-2	18	U	18	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	60.1		0.0183	1
06949	Cadmium	7440-43-9	0.706		0.0203	1
06951	Chromium	7440-47-3	7.21		0.142	1
06955	Lead	7439-92-1	6.05		0.223	1
06936	Selenium	7782-49-2	0.690	U	0.690	1
06966	Silver	7440-22-4	0.0842	U	0.0842	1
	SW-846 6020		**mg/kg**		**mg/kg**	

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Analysis Report

Sample Description: S01-SS03-1315-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497520
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 10:10 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

13153 SDG#: DHR06-05

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 6020**		**mg/kg**	**mg/kg**	
06125	Arsenic	7440-38-2	26.2	0.0819	2
	SW-846 7471A		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0070 U	0.0070	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	5.2	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113551AA	12/21/2011 16:57	Chelsea B Eastep	1.05
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134726425	12/13/2011 13:07	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134726425	12/13/2011 13:07	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134726425	12/13/2011 13:06	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11348SLC026	12/16/2011 08:45	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11348SLC026	12/14/2011 17:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	113485708002	12/19/2011 05:37	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	113485708002	12/19/2011 05:37	Tara L Snyder	1
06951	Chromium	SW-846 6010B	1	113485708002	12/19/2011 05:37	Tara L Snyder	1
06955	Lead	SW-846 6010B	1	113485708002	12/19/2011 05:37	Tara L Snyder	1
06936	Selenium	SW-846 6010B	1	113485708002	12/19/2011 05:37	Tara L Snyder	1
06966	Silver	SW-846 6010B	1	113485708002	12/19/2011 05:37	Tara L Snyder	1
06125	Arsenic	SW-846 6020	1	113481026002A	12/21/2011 10:01	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113485711003	12/16/2011 07:11	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113485708002	12/15/2011 10:28	James L Mertz	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113481026002	12/15/2011 11:07	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113485711003	12/15/2011 11:55	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11349820005A	12/15/2011 17:39	Scott W Freisher	1

Lancaster Laboratories

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Analysis Report

Sample Description: S01-SS04-0002-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497521
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 10:55 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S4002 SDG#: DHR06-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	58		7	0.84
10949	Benzene	71-43-2	2	J	0.5	0.84
10949	Bromobenzene	108-86-1	4	J	1	0.84
10949	Bromochloromethane	74-97-5	1	U	1	0.84
10949	Bromodichloromethane	75-27-4	1	U	1	0.84
10949	Bromoform	75-25-2	1	U	1	0.84
10949	Bromomethane	74-83-9	2	U	2	0.84
10949	2-Butanone	78-93-3	10	J	4	0.84
10949	n-Butylbenzene	104-51-8	1	U	1	0.84
10949	sec-Butylbenzene	135-98-8	2	J	1	0.84
10949	tert-Butylbenzene	98-06-6	1	U	1	0.84
10949	Carbon Disulfide	75-15-0	3	J	1	0.84
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.84
10949	Chlorobenzene	108-90-7	3	J	1	0.84
10949	Chloroethane	75-00-3	2	U	2	0.84
10949	Chloroform	67-66-3	1	U	1	0.84
10949	Chloromethane	74-87-3	2	U	2	0.84
10949	2-Chlorotoluene	95-49-8	1	U	1	0.84
10949	4-Chlorotoluene	106-43-4	1	U	1	0.84
10949	Cyclohexane	110-82-7	1	U	1	0.84
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.84
10949	Dibromochloromethane	124-48-1	1	U	1	0.84
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.84
10949	Dibromomethane	74-95-3	1	U	1	0.84
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.84
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.84
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.84
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.84
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.84
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.84
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.84
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.84
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.84
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.84
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.84
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.84
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.84
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.84
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.84
10949	Ethylbenzene	100-41-4	1	U	1	0.84
10949	Freon 113	76-13-1	2	U	2	0.84
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.84
10949	2-Hexanone	591-78-6	3	U	3	0.84
10949	Isopropylbenzene	98-82-8	2	J	1	0.84
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.84
10949	Methyl Acetate	79-20-9	2	U	2	0.84
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.84
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.84
10949	Methylcyclohexane	108-87-2	1	U	1	0.84
10949	Methylene Chloride	75-09-2	2	U	2	0.84
10949	Naphthalene	91-20-3	1	U	1	0.84

Sample Description: S01-SS04-0002-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497521
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 10:55 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S4002 SDG#: DHR06-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.84
10949	Styrene	100-42-5	1	U	1	0.84
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.84
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.84
10949	Tetrachloroethene	127-18-4	1	U	1	0.84
10949	Toluene	108-88-3	1	U	1	0.84
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.84
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.84
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.84
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.84
10949	Trichloroethene	79-01-6	1	U	1	0.84
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.84
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.84
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.84
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.84
10949	Vinyl Acetate	108-05-4	2	U	2	0.84
10949	Vinyl Chloride	75-01-4	1	U	1	0.84
10949	m+p-Xylene	179601-23-1	1	U	1	0.84
10949	o-Xylene	95-47-6	1	U	1	0.84

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: carbon disulfide; 1,2-dichloropropane and cis-1,3-dichloropropene.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	10	J	4	1
10727	Benzo(a)pyrene	50-32-8	10	J	4	1
10727	Benzo(b)fluoranthene	205-99-2	19	J	4	1
10727	Benzo(g,h,i)perylene	191-24-2	10	J	4	1
10727	Benzo(k)fluoranthene	207-08-9	7	J	4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	31	J	20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	81	U	81	1
10727	Di-n-butylphthalate	84-74-2	81	U	81	1
10727	Carbazole	86-74-8	20	U	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	16	J	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	20	U	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1

Sample Description: S01-SS04-0002-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497521
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 10:55 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S4002 SDG#: DHR06-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1
10727	Diethylphthalate	84-66-2	81	U	81	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	81	U	81	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1
10727	2,4-Dinitrophenol	51-28-5	410	U	410	1
10727	2,4-Dinitrotoluene	121-14-2	81	U	81	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	81	U	81	1
10727	Fluoranthene	206-44-0	29		4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	41	U	41	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	9	J	4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	81	U	81	1
10727	4-Nitroaniline	100-01-6	81	U	81	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	81	U	81	1
10727	Pentachlorophenol	87-86-5	41	U	41	1
10727	Phenanthrene	85-01-8	19	J	4	1
10727	Phenol	108-95-2	35	J	20	1
10727	Pyrene	129-00-0	23		4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	86.3		0.0220	1
06949	Cadmium	7440-43-9	1.11		0.0244	1
06951	Chromium	7440-47-3	23.0		0.171	1
06955	Lead	7439-92-1	18.6		0.269	1
06936	Selenium	7782-49-2	0.831	U	0.831	1
06966	Silver	7440-22-4	0.101	U	0.101	1
	SW-846 6020		**mg/kg**		**mg/kg**	

Lancaster Laboratories

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Analysis Report

Sample Description: S01-SS04-0002-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497521
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 10:55 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S4002 SDG#: DHR06-06

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 6020**		**mg/kg**	**mg/kg**	
06125	Arsenic	7440-38-2	13.1	0.0950	2
	SW-846 7471A		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0234 J	0.0082	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	18.2	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113551AA	12/21/2011 17:19	Chelsea B Eastep	0.84
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134726425	12/13/2011 13:09	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134726425	12/13/2011 13:09	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134726425	12/13/2011 13:08	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11348SLC026	12/16/2011 09:10	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11348SLC026	12/14/2011 17:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	113485708002	12/19/2011 05:40	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	113485708002	12/19/2011 05:40	Tara L Snyder	1
06951	Chromium	SW-846 6010B	1	113485708002	12/19/2011 05:40	Tara L Snyder	1
06955	Lead	SW-846 6010B	1	113485708002	12/19/2011 05:40	Tara L Snyder	1
06936	Selenium	SW-846 6010B	1	113485708002	12/20/2011 04:27	Tara L Snyder	1
06966	Silver	SW-846 6010B	1	113485708002	12/19/2011 05:40	Tara L Snyder	1
06125	Arsenic	SW-846 6020	1	113481026002A	12/21/2011 10:02	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113485711003	12/16/2011 07:12	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113485708002	12/15/2011 10:28	James L Mertz	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113481026002	12/15/2011 11:07	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113485711003	12/15/2011 11:55	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11349820005A	12/15/2011 17:39	Scott W Freisher	1

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Analysis Report

Sample Description: S01-SS04-0305-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497522
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 11:00 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S4305 SDG#: DHR06-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	40		7	0.83
10949	Benzene	71-43-2	0.5	U	0.5	0.83
10949	Bromobenzene	108-86-1	1	U	1	0.83
10949	Bromochloromethane	74-97-5	1	U	1	0.83
10949	Bromodichloromethane	75-27-4	1	U	1	0.83
10949	Bromoform	75-25-2	1	U	1	0.83
10949	Bromomethane	74-83-9	2	U	2	0.83
10949	2-Butanone	78-93-3	4	J	4	0.83
10949	n-Butylbenzene	104-51-8	1	U	1	0.83
10949	sec-Butylbenzene	135-98-8	1	U	1	0.83
10949	tert-Butylbenzene	98-06-6	1	U	1	0.83
10949	Carbon Disulfide	75-15-0	1	U	1	0.83
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.83
10949	Chlorobenzene	108-90-7	1	U	1	0.83
10949	Chloroethane	75-00-3	2	U	2	0.83
10949	Chloroform	67-66-3	1	U	1	0.83
10949	Chloromethane	74-87-3	2	U	2	0.83
10949	2-Chlorotoluene	95-49-8	1	U	1	0.83
10949	4-Chlorotoluene	106-43-4	1	U	1	0.83
10949	Cyclohexane	110-82-7	1	U	1	0.83
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.83
10949	Dibromochloromethane	124-48-1	1	U	1	0.83
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.83
10949	Dibromomethane	74-95-3	1	U	1	0.83
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.83
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.83
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.83
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.83
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.83
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.83
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.83
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.83
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.83
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.83
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.83
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.83
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.83
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.83
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.83
10949	Ethylbenzene	100-41-4	1	U	1	0.83
10949	Freon 113	76-13-1	2	U	2	0.83
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.83
10949	2-Hexanone	591-78-6	3	U	3	0.83
10949	Isopropylbenzene	98-82-8	1	U	1	0.83
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.83
10949	Methyl Acetate	79-20-9	2	U	2	0.83
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.83
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.83
10949	Methylcyclohexane	108-87-2	1	U	1	0.83
10949	Methylene Chloride	75-09-2	2	U	2	0.83
10949	Naphthalene	91-20-3	1	U	1	0.83

Sample Description: S01-SS04-0305-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497522
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 11:00 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S4305 SDG#: DHR06-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.83
10949	Styrene	100-42-5	1	U	1	0.83
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.83
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.83
10949	Tetrachloroethene	127-18-4	1	J	1	0.83
10949	Toluene	108-88-3	1	U	1	0.83
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.83
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.83
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.83
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.83
10949	Trichloroethene	79-01-6	1	U	1	0.83
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.83
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.83
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.83
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.83
10949	Vinyl Acetate	108-05-4	2	U	2	0.83
10949	Vinyl Chloride	75-01-4	1	U	1	0.83
10949	m+p-Xylene	179601-23-1	1	U	1	0.83
10949	o-Xylene	95-47-6	1	U	1	0.83

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: carbon disulfide; 1,2-dichloropropane and cis-1,3-dichloropropene.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	20	U	20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	81	U	81	1
10727	Di-n-butylphthalate	84-74-2	81	U	81	1
10727	Carbazole	86-74-8	20	U	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	20	U	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1

Sample Description: S01-SS04-0305-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497522
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 11:00 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S4305 SDG#: DHR06-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1
10727	Diethylphthalate	84-66-2	81	U	81	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	81	U	81	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1
10727	2,4-Dinitrophenol	51-28-5	410	U	410	1
10727	2,4-Dinitrotoluene	121-14-2	81	U	81	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	81	U	81	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	41	U	41	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	81	U	81	1
10727	4-Nitroaniline	100-01-6	81	U	81	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	81	U	81	1
10727	Pentachlorophenol	87-86-5	41	U	41	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	20	U	20	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	92.6		0.0215	1
06949	Cadmium	7440-43-9	0.923		0.0239	1
06951	Chromium	7440-47-3	19.6		0.167	1
06955	Lead	7439-92-1	14.0		0.263	1
06936	Selenium	7782-49-2	0.812	U	0.812	1
06966	Silver	7440-22-4	0.0991	U	0.0991	1
	SW-846 6020		**mg/kg**		**mg/kg**	

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Analysis Report

Sample Description: S01-SS04-0305-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497522
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 11:00 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S4305 SDG#: DHR06-07

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 6020**		**mg/kg**	**mg/kg**	
06125	Arsenic	7440-38-2	11.9	0.0928	2
	SW-846 7471A		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0278 J	0.0085	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	17.9	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113551AA	12/21/2011 17:42	Chelsea B Eastep	0.83
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134726425	12/13/2011 13:11	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134726425	12/13/2011 13:11	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134726425	12/13/2011 13:10	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11348SLC026	12/16/2011 09:34	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11348SLC026	12/14/2011 17:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	113485708002	12/19/2011 05:44	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	113485708002	12/19/2011 05:44	Tara L Snyder	1
06951	Chromium	SW-846 6010B	1	113485708002	12/19/2011 05:44	Tara L Snyder	1
06955	Lead	SW-846 6010B	1	113485708002	12/19/2011 05:44	Tara L Snyder	1
06936	Selenium	SW-846 6010B	1	113485708002	12/20/2011 04:31	Tara L Snyder	1
06966	Silver	SW-846 6010B	1	113485708002	12/19/2011 05:44	Tara L Snyder	1
06125	Arsenic	SW-846 6020	1	113481026002A	12/21/2011 10:04	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113485711003	12/16/2011 07:13	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113485708002	12/15/2011 10:28	James L Mertz	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113481026002	12/15/2011 11:07	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113485711003	12/15/2011 11:55	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11349820005A	12/15/2011 17:39	Scott W Freisher	1

Lancaster Laboratories

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Analysis Report

Sample Description: S01-SS04-0810-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497523
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 11:05 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S4810 SDG#: DHR06-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	64		8	0.88
10949	Benzene	71-43-2	0.5	U	0.5	0.88
10949	Bromobenzene	108-86-1	1	U	1	0.88
10949	Bromochloromethane	74-97-5	1	U	1	0.88
10949	Bromodichloromethane	75-27-4	1	U	1	0.88
10949	Bromoform	75-25-2	1	U	1	0.88
10949	Bromomethane	74-83-9	2	U	2	0.88
10949	2-Butanone	78-93-3	8	J	4	0.88
10949	n-Butylbenzene	104-51-8	1	U	1	0.88
10949	sec-Butylbenzene	135-98-8	1	U	1	0.88
10949	tert-Butylbenzene	98-06-6	1	U	1	0.88
10949	Carbon Disulfide	75-15-0	1	U	1	0.88
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.88
10949	Chlorobenzene	108-90-7	1	U	1	0.88
10949	Chloroethane	75-00-3	2	U	2	0.88
10949	Chloroform	67-66-3	1	U	1	0.88
10949	Chloromethane	74-87-3	2	U	2	0.88
10949	2-Chlorotoluene	95-49-8	1	U	1	0.88
10949	4-Chlorotoluene	106-43-4	1	U	1	0.88
10949	Cyclohexane	110-82-7	1	U	1	0.88
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.88
10949	Dibromochloromethane	124-48-1	1	U	1	0.88
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.88
10949	Dibromomethane	74-95-3	1	U	1	0.88
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.88
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.88
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.88
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.88
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.88
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.88
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.88
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.88
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.88
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.88
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.88
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.88
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.88
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.88
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.88
10949	Ethylbenzene	100-41-4	1	U	1	0.88
10949	Freon 113	76-13-1	2	U	2	0.88
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.88
10949	2-Hexanone	591-78-6	3	U	3	0.88
10949	Isopropylbenzene	98-82-8	1	U	1	0.88
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.88
10949	Methyl Acetate	79-20-9	2	U	2	0.88
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.88
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.88
10949	Methylcyclohexane	108-87-2	1	U	1	0.88
10949	Methylene Chloride	75-09-2	2	U	2	0.88
10949	Naphthalene	91-20-3	1	U	1	0.88

Sample Description: S01-SS04-0810-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497523
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 11:05 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S4810 SDG#: DHR06-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.88
10949	Styrene	100-42-5	1	U	1	0.88
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.88
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.88
10949	Tetrachloroethene	127-18-4	4	J	1	0.88
10949	Toluene	108-88-3	1	U	1	0.88
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.88
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.88
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.88
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.88
10949	Trichloroethene	79-01-6	1	U	1	0.88
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.88
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.88
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.88
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.88
10949	Vinyl Acetate	108-05-4	2	U	2	0.88
10949	Vinyl Chloride	75-01-4	1	U	1	0.88
10949	m+p-Xylene	179601-23-1	1	U	1	0.88
10949	o-Xylene	95-47-6	1	U	1	0.88

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: carbon disulfide; 1,2-dichloropropane and cis-1,3-dichloropropene.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	J	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	210	U	210	1
10727	1,1'-Biphenyl	92-52-4	21	U	21	1
10727	4-Bromophenyl-phenylether	101-55-3	21	U	21	1
10727	Butylbenzylphthalate	85-68-7	83	U	83	1
10727	Di-n-butylphthalate	84-74-2	83	U	83	1
10727	Carbazole	86-74-8	21	U	21	1
10727	4-Chloro-3-methylphenol	59-50-7	21	U	21	1
10727	4-Chloroaniline	106-47-8	21	U	21	1
10727	bis(2-Chloroethoxy)methane	111-91-1	21	U	21	1
10727	bis(2-Chloroethyl)ether	111-44-4	21	U	21	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	21	U	21	1
10727	4-Chlorophenyl-phenylether	7005-72-3	21	U	21	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	21	U	21	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1

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Analysis Report

Sample Description: S01-SS04-0810-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497523
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 11:05 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S4810 SDG#: DHR06-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dichlorophenol	120-83-2	21	U	21	1
10727	Diethylphthalate	84-66-2	83	U	83	1
10727	2,4-Dimethylphenol	105-67-9	21	U	21	1
10727	Dimethylphthalate	131-11-3	83	U	83	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	210	U	210	1
10727	2,4-Dinitrophenol	51-28-5	420	U	420	1
10727	2,4-Dinitrotoluene	121-14-2	83	U	83	1
10727	2,6-Dinitrotoluene	606-20-2	21	U	21	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	83	U	83	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	210	U	210	1
10727	Hexachloroethane	67-72-1	42	U	42	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	21	U	21	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	21	U	21	1
10727	4-Methylphenol	106-44-5	21	U	21	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	21	U	21	1
10727	3-Nitroaniline	99-09-2	83	U	83	1
10727	4-Nitroaniline	100-01-6	83	U	83	1
10727	Nitrobenzene	98-95-3	21	U	21	1
10727	2-Nitrophenol	88-75-5	21	U	21	1
10727	4-Nitrophenol	100-02-7	210	U	210	1
10727	N-Nitroso-di-n-propylamine	621-64-7	21	U	21	1
10727	N-Nitrosodiphenylamine	86-30-6	21	U	21	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	83	U	83	1
10727	Pentachlorophenol	87-86-5	42	U	42	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	21	U	21	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	21	U	21	1
10727	2,4,6-Trichlorophenol	88-06-2	21	U	21	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	63.4		0.0225	1
06949	Cadmium	7440-43-9	0.798		0.0250	1
06951	Chromium	7440-47-3	14.9		0.175	1
06955	Lead	7439-92-1	12.1		0.275	1
06936	Selenium	7782-49-2	0.849	U	0.849	1
06966	Silver	7440-22-4	0.104	U	0.104	1
	SW-846 6020		**mg/kg**		**mg/kg**	

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Analysis Report

Sample Description: S01-SS04-0810-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497523
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 11:05 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S4810 SDG#: DHR06-08

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 6020**		**mg/kg**	**mg/kg**	
06125	Arsenic	7440-38-2	12.8	0.0970	2
	SW-846 7471A		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0175 J	0.0083	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	19.9	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113551AA	12/21/2011 18:05	Chelsea B Eastep	0.88
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134726425	12/13/2011 13:13	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134726425	12/13/2011 13:13	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134726425	12/13/2011 13:12	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11348SLC026	12/16/2011 09:59	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11348SLC026	12/14/2011 17:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	113485708002	12/19/2011 05:48	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	113485708002	12/19/2011 05:48	Tara L Snyder	1
06951	Chromium	SW-846 6010B	1	113485708002	12/19/2011 05:48	Tara L Snyder	1
06955	Lead	SW-846 6010B	1	113485708002	12/19/2011 05:48	Tara L Snyder	1
06936	Selenium	SW-846 6010B	1	113485708002	12/19/2011 05:48	Tara L Snyder	1
06966	Silver	SW-846 6010B	1	113485708002	12/19/2011 05:48	Tara L Snyder	1
06125	Arsenic	SW-846 6020	1	113481026002A	12/21/2011 10:05	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113485711003	12/16/2011 07:15	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113485708002	12/15/2011 10:28	James L Mertz	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113481026002	12/15/2011 11:07	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113485711003	12/15/2011 11:55	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11349820005A	12/15/2011 17:39	Scott W Freisher	1

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Analysis Report

Sample Description: HGR-121211-FD01 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497524
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

FD01- SDG#: DHR06-09FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	37		7	0.84
10949	Benzene	71-43-2	0.5	U	0.5	0.84
10949	Bromobenzene	108-86-1	1	U	1	0.84
10949	Bromochloromethane	74-97-5	1	U	1	0.84
10949	Bromodichloromethane	75-27-4	1	U	1	0.84
10949	Bromoform	75-25-2	1	U	1	0.84
10949	Bromomethane	74-83-9	2	U	2	0.84
10949	2-Butanone	78-93-3	4	U	4	0.84
10949	n-Butylbenzene	104-51-8	1	U	1	0.84
10949	sec-Butylbenzene	135-98-8	1	U	1	0.84
10949	tert-Butylbenzene	98-06-6	1	U	1	0.84
10949	Carbon Disulfide	75-15-0	1	U	1	0.84
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.84
10949	Chlorobenzene	108-90-7	1	U	1	0.84
10949	Chloroethane	75-00-3	2	U	2	0.84
10949	Chloroform	67-66-3	1	U	1	0.84
10949	Chloromethane	74-87-3	2	U	2	0.84
10949	2-Chlorotoluene	95-49-8	1	U	1	0.84
10949	4-Chlorotoluene	106-43-4	1	U	1	0.84
10949	Cyclohexane	110-82-7	1	U	1	0.84
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.84
10949	Dibromochloromethane	124-48-1	1	U	1	0.84
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.84
10949	Dibromomethane	74-95-3	1	U	1	0.84
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.84
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.84
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.84
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.84
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.84
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.84
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.84
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.84
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.84
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.84
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.84
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.84
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.84
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.84
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.84
10949	Ethylbenzene	100-41-4	1	U	1	0.84
10949	Freon 113	76-13-1	2	U	2	0.84
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.84
10949	2-Hexanone	591-78-6	3	U	3	0.84
10949	Isopropylbenzene	98-82-8	1	U	1	0.84
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.84
10949	Methyl Acetate	79-20-9	2	U	2	0.84
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.84
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.84
10949	Methylcyclohexane	108-87-2	1	U	1	0.84
10949	Methylene Chloride	75-09-2	2	U	2	0.84
10949	Naphthalene	91-20-3	1	U	1	0.84

Sample Description: HGR-121211-FD01 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497524
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

FD01- SDG#: DHR06-09FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.84
10949	Styrene	100-42-5	1	U	1	0.84
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.84
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.84
10949	Tetrachloroethene	127-18-4	1	J	1	0.84
10949	Toluene	108-88-3	1	U	1	0.84
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.84
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.84
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.84
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.84
10949	Trichloroethene	79-01-6	1	U	1	0.84
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.84
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.84
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.84
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.84
10949	Vinyl Acetate	108-05-4	2	U	2	0.84
10949	Vinyl Chloride	75-01-4	1	U	1	0.84
10949	m+p-Xylene	179601-23-1	1	U	1	0.84
10949	o-Xylene	95-47-6	1	U	1	0.84

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: carbon disulfide; 1,2-dichloropropane and cis-1,3-dichloropropene.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	20	U	20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	81	U	81	1
10727	Di-n-butylphthalate	84-74-2	81	U	81	1
10727	Carbazole	86-74-8	20	U	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	20	U	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1

Sample Description: HGR-121211-FD01 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497524
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

FD01- SDG#: DHR06-09FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1
10727	Diethylphthalate	84-66-2	81	U	81	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	81	U	81	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1
10727	2,4-Dinitrophenol	51-28-5	410	U	410	1
10727	2,4-Dinitrotoluene	121-14-2	81	U	81	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	81	U	81	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	41	U	41	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	81	U	81	1
10727	4-Nitroaniline	100-01-6	81	U	81	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	81	U	81	1
10727	Pentachlorophenol	87-86-5	41	U	41	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	20	U	20	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	99.8		0.0208	1
06949	Cadmium	7440-43-9	0.979		0.0231	1
06951	Chromium	7440-47-3	20.9		0.162	1
06955	Lead	7439-92-1	15.4		0.255	1
06936	Selenium	7782-49-2	0.787	U	0.787	1
06966	Silver	7440-22-4	0.0960	U	0.0960	1
	SW-846 6020		**mg/kg**		**mg/kg**	

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Analysis Report

Sample Description: HGR-121211-FD01 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497524
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

FD01- SDG#: DHR06-09FD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 6020**		**mg/kg**	**mg/kg**	
06125	Arsenic	7440-38-2	13.4	0.0972	2
	SW-846 7471A		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0170 J	0.0080	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	17.7	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113551AA	12/21/2011 18:28	Chelsea B Eastep	0.84
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134726425	12/13/2011 13:15	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134726425	12/13/2011 13:15	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134726425	12/13/2011 13:15	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11348SLC026	12/16/2011 10:23	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11348SLC026	12/14/2011 17:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	113485708002	12/19/2011 05:51	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	113485708002	12/19/2011 05:51	Tara L Snyder	1
06951	Chromium	SW-846 6010B	1	113485708002	12/19/2011 05:51	Tara L Snyder	1
06955	Lead	SW-846 6010B	1	113485708002	12/19/2011 05:51	Tara L Snyder	1
06936	Selenium	SW-846 6010B	1	113485708002	12/20/2011 04:35	Tara L Snyder	1
06966	Silver	SW-846 6010B	1	113485708002	12/19/2011 05:51	Tara L Snyder	1
06125	Arsenic	SW-846 6020	1	113481026002A	12/21/2011 10:07	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113485711003	12/16/2011 07:16	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113485708002	12/15/2011 10:28	James L Mertz	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113481026002	12/15/2011 11:07	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113485711003	12/15/2011 11:55	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11349820005A	12/15/2011 17:39	Scott W Freisher	1

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Analysis Report

Sample Description: S01-SS05-0002-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497525
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 12:05 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S5002 SDG#: DHR06-10

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	8	J	7	0.83
10949	Benzene	71-43-2	0.5	U	0.5	0.83
10949	Bromobenzene	108-86-1	1	U	1	0.83
10949	Bromochloromethane	74-97-5	1	U	1	0.83
10949	Bromodichloromethane	75-27-4	1	U	1	0.83
10949	Bromoform	75-25-2	1	U	1	0.83
10949	Bromomethane	74-83-9	2	U	2	0.83
10949	2-Butanone	78-93-3	4	U	4	0.83
10949	n-Butylbenzene	104-51-8	1	U	1	0.83
10949	sec-Butylbenzene	135-98-8	1	U	1	0.83
10949	tert-Butylbenzene	98-06-6	1	U	1	0.83
10949	Carbon Disulfide	75-15-0	1	U	1	0.83
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.83
10949	Chlorobenzene	108-90-7	1	U	1	0.83
10949	Chloroethane	75-00-3	2	U	2	0.83
10949	Chloroform	67-66-3	1	U	1	0.83
10949	Chloromethane	74-87-3	2	U	2	0.83
10949	2-Chlorotoluene	95-49-8	1	U	1	0.83
10949	4-Chlorotoluene	106-43-4	1	U	1	0.83
10949	Cyclohexane	110-82-7	1	U	1	0.83
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.83
10949	Dibromochloromethane	124-48-1	1	U	1	0.83
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.83
10949	Dibromomethane	74-95-3	1	U	1	0.83
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.83
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.83
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.83
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.83
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.83
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.83
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.83
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.83
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.83
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.83
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.83
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.83
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.83
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.83
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.83
10949	Ethylbenzene	100-41-4	1	U	1	0.83
10949	Freon 113	76-13-1	2	U	2	0.83
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.83
10949	2-Hexanone	591-78-6	3	U	3	0.83
10949	Isopropylbenzene	98-82-8	1	U	1	0.83
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.83
10949	Methyl Acetate	79-20-9	2	U	2	0.83
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.83
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.83
10949	Methylcyclohexane	108-87-2	1	U	1	0.83
10949	Methylene Chloride	75-09-2	2	U	2	0.83
10949	Naphthalene	91-20-3	1	U	1	0.83

Sample Description: S01-SS05-0002-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497525
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 12:05 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S5002 SDG#: DHR06-10

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.83
10949	Styrene	100-42-5	1	U	1	0.83
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.83
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.83
10949	Tetrachloroethene	127-18-4	3	J	1	0.83
10949	Toluene	108-88-3	1	U	1	0.83
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.83
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.83
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.83
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.83
10949	Trichloroethene	79-01-6	1	U	1	0.83
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.83
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.83
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.83
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.83
10949	Vinyl Acetate	108-05-4	2	U	2	0.83
10949	Vinyl Chloride	75-01-4	1	U	1	0.83
10949	m+p-Xylene	179601-23-1	1	U	1	0.83
10949	o-Xylene	95-47-6	1	U	1	0.83

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: carbon disulfide; 1,2-dichloropropane and cis-1,3-dichloropropene.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	5	J	4	1
10727	Benzo(g,h,i)perylene	191-24-2	6	J	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	20	U	20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	80	U	80	1
10727	Di-n-butylphthalate	84-74-2	80	U	80	1
10727	Carbazole	86-74-8	20	U	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	8	U	8	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	5	J	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	20	U	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1

Sample Description: S01-SS05-0002-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497525
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 12:05 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S5002 SDG#: DHR06-10

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1
10727	Diethylphthalate	84-66-2	80	U	80	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	80	U	80	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1
10727	2,4-Dinitrophenol	51-28-5	400	U	400	1
10727	2,4-Dinitrotoluene	121-14-2	80	U	80	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	80	U	80	1
10727	Fluoranthene	206-44-0	8	J	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	40	U	40	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	80	U	80	1
10727	4-Nitroaniline	100-01-6	80	U	80	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	80	U	80	1
10727	Pentachlorophenol	87-86-5	40	U	40	1
10727	Phenanthrene	85-01-8	8	J	4	1
10727	Phenol	108-95-2	20	U	20	1
10727	Pyrene	129-00-0	9	J	4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	103		0.0213	1
06949	Cadmium	7440-43-9	0.921		0.0236	1
06951	Chromium	7440-47-3	26.0		0.165	1
06955	Lead	7439-92-1	15.2		0.260	1
06936	Selenium	7782-49-2	0.803	U	0.803	1
06966	Silver	7440-22-4	0.0980	U	0.0980	1
	SW-846 6020		**mg/kg**		**mg/kg**	

Lancaster Laboratories

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Analysis Report

Sample Description: S01-SS05-0002-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497525
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 12:05 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S5002 SDG#: DHR06-10

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 6020**		**mg/kg**	**mg/kg**	
06125	Arsenic	7440-38-2	12.5	0.0936	2
	SW-846 7471A		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0098 J	0.0080	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	17.0	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113551AA	12/21/2011 18:51	Chelsea B Eastep	0.83
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134726425	12/13/2011 13:17	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134726425	12/13/2011 13:17	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134726425	12/13/2011 13:17	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11348SLC026	12/16/2011 10:48	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11348SLC026	12/14/2011 17:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	113485708002	12/19/2011 05:55	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	113485708002	12/19/2011 05:55	Tara L Snyder	1
06951	Chromium	SW-846 6010B	1	113485708002	12/19/2011 05:55	Tara L Snyder	1
06955	Lead	SW-846 6010B	1	113485708002	12/19/2011 05:55	Tara L Snyder	1
06936	Selenium	SW-846 6010B	1	113485708002	12/19/2011 05:55	Tara L Snyder	1
06966	Silver	SW-846 6010B	1	113485708002	12/19/2011 05:55	Tara L Snyder	1
06125	Arsenic	SW-846 6020	1	113481026002A	12/21/2011 10:08	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113485711003	12/16/2011 07:17	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113485708002	12/15/2011 10:28	James L Mertz	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113481026002	12/15/2011 11:07	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113485711003	12/15/2011 11:55	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11349820005A	12/15/2011 17:39	Scott W Freisher	1

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Analysis Report

Sample Description: S01-SS05-0305-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497526
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 12:10 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S5305 SDG#: DHR06-11

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	15	J	7	0.81
10949	Benzene	71-43-2	0.5	U	0.5	0.81
10949	Bromobenzene	108-86-1	1	U	1	0.81
10949	Bromochloromethane	74-97-5	1	U	1	0.81
10949	Bromodichloromethane	75-27-4	1	U	1	0.81
10949	Bromoform	75-25-2	1	U	1	0.81
10949	Bromomethane	74-83-9	2	U	2	0.81
10949	2-Butanone	78-93-3	4	U	4	0.81
10949	n-Butylbenzene	104-51-8	1	U	1	0.81
10949	sec-Butylbenzene	135-98-8	1	U	1	0.81
10949	tert-Butylbenzene	98-06-6	1	U	1	0.81
10949	Carbon Disulfide	75-15-0	1	U	1	0.81
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.81
10949	Chlorobenzene	108-90-7	1	U	1	0.81
10949	Chloroethane	75-00-3	2	U	2	0.81
10949	Chloroform	67-66-3	1	U	1	0.81
10949	Chloromethane	74-87-3	2	U	2	0.81
10949	2-Chlorotoluene	95-49-8	1	U	1	0.81
10949	4-Chlorotoluene	106-43-4	1	U	1	0.81
10949	Cyclohexane	110-82-7	1	U	1	0.81
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.81
10949	Dibromochloromethane	124-48-1	1	U	1	0.81
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.81
10949	Dibromomethane	74-95-3	1	U	1	0.81
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.81
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.81
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.81
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.81
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.81
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.81
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.81
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.81
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.81
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.81
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.81
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.81
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.81
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.81
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.81
10949	Ethylbenzene	100-41-4	1	U	1	0.81
10949	Freon 113	76-13-1	2	U	2	0.81
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.81
10949	2-Hexanone	591-78-6	3	U	3	0.81
10949	Isopropylbenzene	98-82-8	1	U	1	0.81
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.81
10949	Methyl Acetate	79-20-9	2	U	2	0.81
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.81
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.81
10949	Methylcyclohexane	108-87-2	1	U	1	0.81
10949	Methylene Chloride	75-09-2	2	U	2	0.81
10949	Naphthalene	91-20-3	1	U	1	0.81

Sample Description: S01-SS05-0305-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497526
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 12:10 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S5305 SDG#: DHR06-11

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.81
10949	Styrene	100-42-5	1	U	1	0.81
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.81
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.81
10949	Tetrachloroethene	127-18-4	4	J	1	0.81
10949	Toluene	108-88-3	1	U	1	0.81
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.81
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.81
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.81
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.81
10949	Trichloroethene	79-01-6	1	U	1	0.81
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.81
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.81
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.81
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.81
10949	Vinyl Acetate	108-05-4	2	U	2	0.81
10949	Vinyl Chloride	75-01-4	1	U	1	0.81
10949	m+p-Xylene	179601-23-1	1	U	1	0.81
10949	o-Xylene	95-47-6	1	U	1	0.81

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: carbon disulfide; 1,2-dichloropropane and cis-1,3-dichloropropene.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	20	U	20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	82	U	82	1
10727	Di-n-butylphthalate	84-74-2	82	U	82	1
10727	Carbazole	86-74-8	20	U	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	20	U	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1

Sample Description: S01-SS05-0305-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497526
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 12:10 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S5305 SDG#: DHR06-11

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1
10727	Diethylphthalate	84-66-2	82	U	82	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	82	U	82	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1
10727	2,4-Dinitrophenol	51-28-5	410	U	410	1
10727	2,4-Dinitrotoluene	121-14-2	82	U	82	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	82	U	82	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	41	U	41	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	82	U	82	1
10727	4-Nitroaniline	100-01-6	82	U	82	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	82	U	82	1
10727	Pentachlorophenol	87-86-5	41	U	41	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	20	U	20	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	78.2		0.0216	1
06949	Cadmium	7440-43-9	0.953		0.0240	1
06951	Chromium	7440-47-3	19.7		0.168	1
06955	Lead	7439-92-1	14.8		0.264	1
06936	Selenium	7782-49-2	0.816	U	0.816	1
06966	Silver	7440-22-4	0.0996	U	0.0996	1
	SW-846 6020		**mg/kg**		**mg/kg**	

Lancaster Laboratories

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Analysis Report

Sample Description: S01-SS05-0305-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497526
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 12:10 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S5305 SDG#: DHR06-11

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 6020**		**mg/kg**	**mg/kg**	
06125	Arsenic	7440-38-2	12.1	0.0969	2
	SW-846 7471A		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0236 J	0.0080	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	18.3	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113551AA	12/21/2011 19:14	Chelsea B Eastep	0.81
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134726425	12/13/2011 13:20	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134726425	12/13/2011 13:21	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134726425	12/13/2011 13:20	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11348SLC026	12/16/2011 11:13	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11348SLC026	12/14/2011 17:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	113485708002	12/19/2011 05:59	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	113485708002	12/19/2011 05:59	Tara L Snyder	1
06951	Chromium	SW-846 6010B	1	113485708002	12/19/2011 05:59	Tara L Snyder	1
06955	Lead	SW-846 6010B	1	113485708002	12/19/2011 05:59	Tara L Snyder	1
06936	Selenium	SW-846 6010B	1	113485708002	12/20/2011 04:39	Tara L Snyder	1
06966	Silver	SW-846 6010B	1	113485708002	12/19/2011 05:59	Tara L Snyder	1
06125	Arsenic	SW-846 6020	1	113481026002A	12/21/2011 10:10	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113485711003	12/16/2011 07:18	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113485708002	12/15/2011 10:28	James L Mertz	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113481026002	12/15/2011 11:07	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113485711003	12/15/2011 11:55	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11349820005A	12/15/2011 17:39	Scott W Freisher	1

Lancaster Laboratories

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Analysis Report

Sample Description: S01-SS05-0810-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497527
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 12:15 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S5810 SDG#: DHR06-12

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	43		7	0.82
10949	Benzene	71-43-2	0.5	U	0.5	0.82
10949	Bromobenzene	108-86-1	1	U	1	0.82
10949	Bromochloromethane	74-97-5	1	U	1	0.82
10949	Bromodichloromethane	75-27-4	1	U	1	0.82
10949	Bromoform	75-25-2	1	U	1	0.82
10949	Bromomethane	74-83-9	2	U	2	0.82
10949	2-Butanone	78-93-3	5	J	4	0.82
10949	n-Butylbenzene	104-51-8	1	U	1	0.82
10949	sec-Butylbenzene	135-98-8	1	U	1	0.82
10949	tert-Butylbenzene	98-06-6	1	U	1	0.82
10949	Carbon Disulfide	75-15-0	1	U	1	0.82
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.82
10949	Chlorobenzene	108-90-7	1	U	1	0.82
10949	Chloroethane	75-00-3	2	U	2	0.82
10949	Chloroform	67-66-3	1	U	1	0.82
10949	Chloromethane	74-87-3	2	U	2	0.82
10949	2-Chlorotoluene	95-49-8	1	U	1	0.82
10949	4-Chlorotoluene	106-43-4	1	U	1	0.82
10949	Cyclohexane	110-82-7	1	U	1	0.82
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.82
10949	Dibromochloromethane	124-48-1	1	U	1	0.82
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.82
10949	Dibromomethane	74-95-3	1	U	1	0.82
10949	1,2-Dichlorobenzene	95-50-1	2	J	1	0.82
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.82
10949	1,4-Dichlorobenzene	106-46-7	2	J	1	0.82
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.82
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.82
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.82
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.82
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.82
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.82
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.82
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.82
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.82
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.82
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.82
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.82
10949	Ethylbenzene	100-41-4	1	U	1	0.82
10949	Freon 113	76-13-1	2	U	2	0.82
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.82
10949	2-Hexanone	591-78-6	3	U	3	0.82
10949	Isopropylbenzene	98-82-8	1	U	1	0.82
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.82
10949	Methyl Acetate	79-20-9	2	U	2	0.82
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.82
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.82
10949	Methylcyclohexane	108-87-2	1	U	1	0.82
10949	Methylene Chloride	75-09-2	2	U	2	0.82
10949	Naphthalene	91-20-3	1	U	1	0.82

Sample Description: S01-SS05-0810-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497527
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 12:15 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S5810 SDG#: DHR06-12

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.82
10949	Styrene	100-42-5	1	U	1	0.82
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.82
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.82
10949	Tetrachloroethene	127-18-4	5	J	1	0.82
10949	Toluene	108-88-3	1	U	1	0.82
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.82
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.82
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.82
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.82
10949	Trichloroethene	79-01-6	1	U	1	0.82
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.82
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.82
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.82
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.82
10949	Vinyl Acetate	108-05-4	2	U	2	0.82
10949	Vinyl Chloride	75-01-4	1	U	1	0.82
10949	m+p-Xylene	179601-23-1	1	U	1	0.82
10949	o-Xylene	95-47-6	1	U	1	0.82

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: carbon disulfide; 1,2-dichloropropane and cis-1,3-dichloropropene.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	210	U	210	1
10727	1,1'-Biphenyl	92-52-4	21	U	21	1
10727	4-Bromophenyl-phenylether	101-55-3	21	U	21	1
10727	Butylbenzylphthalate	85-68-7	83	U	83	1
10727	Di-n-butylphthalate	84-74-2	83	U	83	1
10727	Carbazole	86-74-8	21	U	21	1
10727	4-Chloro-3-methylphenol	59-50-7	21	U	21	1
10727	4-Chloroaniline	106-47-8	21	U	21	1
10727	bis(2-Chloroethoxy)methane	111-91-1	21	U	21	1
10727	bis(2-Chloroethyl)ether	111-44-4	21	U	21	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	21	U	21	1
10727	4-Chlorophenyl-phenylether	7005-72-3	21	U	21	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	21	U	21	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1

Sample Description: S01-SS05-0810-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497527
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 12:15 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S5810 SDG#: DHR06-12

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dichlorophenol	120-83-2	21	U	21	1
10727	Diethylphthalate	84-66-2	83	U	83	1
10727	2,4-Dimethylphenol	105-67-9	21	U	21	1
10727	Dimethylphthalate	131-11-3	83	U	83	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	210	U	210	1
10727	2,4-Dinitrophenol	51-28-5	410	U	410	1
10727	2,4-Dinitrotoluene	121-14-2	83	U	83	1
10727	2,6-Dinitrotoluene	606-20-2	21	U	21	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	83	U	83	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	210	U	210	1
10727	Hexachloroethane	67-72-1	41	U	41	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	21	U	21	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	21	U	21	1
10727	4-Methylphenol	106-44-5	21	U	21	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	21	U	21	1
10727	3-Nitroaniline	99-09-2	83	U	83	1
10727	4-Nitroaniline	100-01-6	83	U	83	1
10727	Nitrobenzene	98-95-3	21	U	21	1
10727	2-Nitrophenol	88-75-5	21	U	21	1
10727	4-Nitrophenol	100-02-7	210	U	210	1
10727	N-Nitroso-di-n-propylamine	621-64-7	21	U	21	1
10727	N-Nitrosodiphenylamine	86-30-6	21	U	21	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	83	U	83	1
10727	Pentachlorophenol	87-86-5	41	U	41	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	21	U	21	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	21	U	21	1
10727	2,4,6-Trichlorophenol	88-06-2	21	U	21	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	61.5		0.0217	1
06949	Cadmium	7440-43-9	0.868		0.0241	1
06951	Chromium	7440-47-3	13.9		0.169	1
06955	Lead	7439-92-1	12.0		0.265	1
06936	Selenium	7782-49-2	0.819	U	0.819	1
06966	Silver	7440-22-4	0.100	U	0.100	1
	SW-846 6020		**mg/kg**		**mg/kg**	

Lancaster Laboratories

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Analysis Report

Sample Description: S01-SS05-0810-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497527
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 12:15 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S5810 SDG#: DHR06-12

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 6020**		**mg/kg**	**mg/kg**	
06125	Arsenic	7440-38-2	15.2	0.0964	2
	SW-846 7471A		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0210 J	0.0081	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	19.4	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113551AA	12/21/2011 19:36	Chelsea B Eastep	0.82
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134726425	12/13/2011 13:23	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134726425	12/13/2011 13:24	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134726425	12/13/2011 13:22	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11348SLC026	12/16/2011 11:37	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11348SLC026	12/14/2011 17:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	113485708002	12/19/2011 06:02	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	113485708002	12/19/2011 06:02	Tara L Snyder	1
06951	Chromium	SW-846 6010B	1	113485708002	12/19/2011 06:02	Tara L Snyder	1
06955	Lead	SW-846 6010B	1	113485708002	12/19/2011 06:02	Tara L Snyder	1
06936	Selenium	SW-846 6010B	1	113485708002	12/19/2011 06:02	Tara L Snyder	1
06966	Silver	SW-846 6010B	1	113485708002	12/19/2011 06:02	Tara L Snyder	1
06125	Arsenic	SW-846 6020	1	113481026002A	12/21/2011 10:11	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113485711003	12/16/2011 07:19	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113485708002	12/15/2011 10:28	James L Mertz	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113481026002	12/15/2011 11:07	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113485711003	12/15/2011 11:55	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11349820005A	12/15/2011 17:39	Scott W Freisher	1

Lancaster Laboratories

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Analysis Report

Sample Description: S01-SS05-2123-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497528
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 13:20 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S521- SDG#: DHR06-13

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	8	J	7	0.98
10949	Benzene	71-43-2	0.5	U	0.5	0.98
10949	Bromobenzene	108-86-1	1	U	1	0.98
10949	Bromochloromethane	74-97-5	1	U	1	0.98
10949	Bromodichloromethane	75-27-4	1	U	1	0.98
10949	Bromoform	75-25-2	1	U	1	0.98
10949	Bromomethane	74-83-9	2	U	2	0.98
10949	2-Butanone	78-93-3	4	U	4	0.98
10949	n-Butylbenzene	104-51-8	1	U	1	0.98
10949	sec-Butylbenzene	135-98-8	1	U	1	0.98
10949	tert-Butylbenzene	98-06-6	1	U	1	0.98
10949	Carbon Disulfide	75-15-0	2	J	1	0.98
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.98
10949	Chlorobenzene	108-90-7	1	U	1	0.98
10949	Chloroethane	75-00-3	2	U	2	0.98
10949	Chloroform	67-66-3	1	U	1	0.98
10949	Chloromethane	74-87-3	2	U	2	0.98
10949	2-Chlorotoluene	95-49-8	1	U	1	0.98
10949	4-Chlorotoluene	106-43-4	1	U	1	0.98
10949	Cyclohexane	110-82-7	1	U	1	0.98
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.98
10949	Dibromochloromethane	124-48-1	1	U	1	0.98
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.98
10949	Dibromomethane	74-95-3	1	U	1	0.98
10949	1,2-Dichlorobenzene	95-50-1	2	J	1	0.98
10949	1,3-Dichlorobenzene	541-73-1	6		1	0.98
10949	1,4-Dichlorobenzene	106-46-7	2	J	1	0.98
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.98
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.98
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.98
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.98
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.98
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.98
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.98
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.98
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.98
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.98
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.98
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.98
10949	Ethylbenzene	100-41-4	1	U	1	0.98
10949	Freon 113	76-13-1	2	U	2	0.98
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.98
10949	2-Hexanone	591-78-6	3	U	3	0.98
10949	Isopropylbenzene	98-82-8	1	U	1	0.98
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.98
10949	Methyl Acetate	79-20-9	2	U	2	0.98
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.98
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.98
10949	Methylcyclohexane	108-87-2	1	U	1	0.98
10949	Methylene Chloride	75-09-2	2	U	2	0.98
10949	Naphthalene	91-20-3	1	U	1	0.98

Sample Description: S01-SS05-2123-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497528
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 13:20 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S521- SDG#: DHR06-13

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.98
10949	Styrene	100-42-5	1	U	1	0.98
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.98
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.98
10949	Tetrachloroethene	127-18-4	20		1	0.98
10949	Toluene	108-88-3	1	U	1	0.98
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.98
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.98
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.98
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.98
10949	Trichloroethene	79-01-6	1	U	1	0.98
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.98
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.98
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.98
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.98
10949	Vinyl Acetate	108-05-4	2	U	2	0.98
10949	Vinyl Chloride	75-01-4	1	U	1	0.98
10949	m+p-Xylene	179601-23-1	1	U	1	0.98
10949	o-Xylene	95-47-6	1	U	1	0.98

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: carbon disulfide; 1,2-dichloropropane and cis-1,3-dichloropropene.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	5	J	4	1
10727	Benzo(a)pyrene	50-32-8	6	J	4	1
10727	Benzo(b)fluoranthene	205-99-2	11	J	4	1
10727	Benzo(g,h,i)perylene	191-24-2	12	J	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	180	U	180	1
10727	1,1'-Biphenyl	92-52-4	18	U	18	1
10727	4-Bromophenyl-phenylether	101-55-3	18	U	18	1
10727	Butylbenzylphthalate	85-68-7	71	U	71	1
10727	Di-n-butylphthalate	84-74-2	71	U	71	1
10727	Carbazole	86-74-8	18	U	18	1
10727	4-Chloro-3-methylphenol	59-50-7	18	U	18	1
10727	4-Chloroaniline	106-47-8	18	U	18	1
10727	bis(2-Chloroethoxy)methane	111-91-1	18	U	18	1
10727	bis(2-Chloroethyl)ether	111-44-4	18	U	18	1
10727	2-Chloronaphthalene	91-58-7	7	U	7	1
10727	2-Chlorophenol	95-57-8	18	U	18	1
10727	4-Chlorophenyl-phenylether	7005-72-3	18	U	18	1
10727	Chrysene	218-01-9	13	J	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	18	U	18	1
10727	3,3'-Dichlorobenzidine	91-94-1	110	U	110	1

Sample Description: S01-SS05-2123-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497528
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 13:20 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S521- SDG#: DHR06-13

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dichlorophenol	120-83-2	18	U	18	1
10727	Diethylphthalate	84-66-2	71	U	71	1
10727	2,4-Dimethylphenol	105-67-9	18	U	18	1
10727	Dimethylphthalate	131-11-3	71	U	71	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	180	U	180	1
10727	2,4-Dinitrophenol	51-28-5	360	U	360	1
10727	2,4-Dinitrotoluene	121-14-2	71	U	71	1
10727	2,6-Dinitrotoluene	606-20-2	18	U	18	1
10727	1,4-Dioxane	123-91-1	110	U	110	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	71	U	71	1
10727	Fluoranthene	206-44-0	20		4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	180	U	180	1
10727	Hexachloroethane	67-72-1	36	U	36	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	6	J	4	1
10727	Isophorone	78-59-1	18	U	18	1
10727	2-Methylnaphthalene	91-57-6	5	J	4	1
10727	2-Methylphenol	95-48-7	18	U	18	1
10727	4-Methylphenol	106-44-5	18	U	18	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	18	U	18	1
10727	3-Nitroaniline	99-09-2	71	U	71	1
10727	4-Nitroaniline	100-01-6	71	U	71	1
10727	Nitrobenzene	98-95-3	18	U	18	1
10727	2-Nitrophenol	88-75-5	18	U	18	1
10727	4-Nitrophenol	100-02-7	180	U	180	1
10727	N-Nitroso-di-n-propylamine	621-64-7	18	U	18	1
10727	N-Nitrosodiphenylamine	86-30-6	18	U	18	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	71	U	71	1
10727	Pentachlorophenol	87-86-5	36	U	36	1
10727	Phenanthrene	85-01-8	26		4	1
10727	Phenol	108-95-2	18	U	18	1
10727	Pyrene	129-00-0	23		4	1
10727	2,4,5-Trichlorophenol	95-95-4	18	U	18	1
10727	2,4,6-Trichlorophenol	88-06-2	18	U	18	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	86.5		0.0188	1
06949	Cadmium	7440-43-9	0.502	J	0.0209	1
06951	Chromium	7440-47-3	11.8		0.146	1
06955	Lead	7439-92-1	5.91		0.230	1
06936	Selenium	7782-49-2	0.711	U	0.711	1
06966	Silver	7440-22-4	0.0868	U	0.0868	1
	SW-846 6020		**mg/kg**		**mg/kg**	

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Analysis Report

Sample Description: S01-SS05-2123-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497528
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 13:20 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S521- SDG#: DHR06-13

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 6020**		**mg/kg**	**mg/kg**	
06125	Arsenic	7440-38-2	5.75	0.0821	2
	SW-846 7471A		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0072 U	0.0072	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	6.3	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113551AA	12/22/2011 00:10	Chelsea B Eastep	0.98
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134726425	12/13/2011 13:26	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134726425	12/13/2011 13:26	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134726425	12/13/2011 13:25	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11348SLC026	12/16/2011 12:01	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11348SLC026	12/14/2011 17:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	113485708002	12/19/2011 06:06	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	113485708002	12/19/2011 06:06	Tara L Snyder	1
06951	Chromium	SW-846 6010B	1	113485708002	12/19/2011 06:06	Tara L Snyder	1
06955	Lead	SW-846 6010B	1	113485708002	12/19/2011 06:06	Tara L Snyder	1
06936	Selenium	SW-846 6010B	1	113485708002	12/19/2011 06:06	Tara L Snyder	1
06966	Silver	SW-846 6010B	1	113485708002	12/19/2011 06:06	Tara L Snyder	1
06125	Arsenic	SW-846 6020	1	113481026002A	12/21/2011 10:13	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113485711003	12/16/2011 07:20	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113485708002	12/15/2011 10:28	James L Mertz	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113481026002	12/15/2011 11:07	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113485711003	12/15/2011 11:55	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11349820005A	12/15/2011 17:39	Scott W Freisher	1

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Analysis Report

Sample Description: S01-SS06-0002-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497529
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 15:10 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S6002 SDG#: DHR06-14

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	31		7	0.84
10949	Benzene	71-43-2	0.5	U	0.5	0.84
10949	Bromobenzene	108-86-1	1	U	1	0.84
10949	Bromochloromethane	74-97-5	1	U	1	0.84
10949	Bromodichloromethane	75-27-4	1	U	1	0.84
10949	Bromoform	75-25-2	1	U	1	0.84
10949	Bromomethane	74-83-9	2	U	2	0.84
10949	2-Butanone	78-93-3	4	U	4	0.84
10949	n-Butylbenzene	104-51-8	1	U	1	0.84
10949	sec-Butylbenzene	135-98-8	1	U	1	0.84
10949	tert-Butylbenzene	98-06-6	1	U	1	0.84
10949	Carbon Disulfide	75-15-0	1	U	1	0.84
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.84
10949	Chlorobenzene	108-90-7	1	U	1	0.84
10949	Chloroethane	75-00-3	2	U	2	0.84
10949	Chloroform	67-66-3	1	U	1	0.84
10949	Chloromethane	74-87-3	2	U	2	0.84
10949	2-Chlorotoluene	95-49-8	1	U	1	0.84
10949	4-Chlorotoluene	106-43-4	1	U	1	0.84
10949	Cyclohexane	110-82-7	1	U	1	0.84
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.84
10949	Dibromochloromethane	124-48-1	1	U	1	0.84
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.84
10949	Dibromomethane	74-95-3	1	U	1	0.84
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.84
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.84
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.84
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.84
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.84
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.84
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.84
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.84
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.84
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.84
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.84
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.84
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.84
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.84
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.84
10949	Ethylbenzene	100-41-4	1	U	1	0.84
10949	Freon 113	76-13-1	2	U	2	0.84
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.84
10949	2-Hexanone	591-78-6	3	U	3	0.84
10949	Isopropylbenzene	98-82-8	1	U	1	0.84
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.84
10949	Methyl Acetate	79-20-9	2	U	2	0.84
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.84
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.84
10949	Methylcyclohexane	108-87-2	1	U	1	0.84
10949	Methylene Chloride	75-09-2	2	U	2	0.84
10949	Naphthalene	91-20-3	1	U	1	0.84

Sample Description: S01-SS06-0002-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497529
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 15:10 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S6002 SDG#: DHR06-14

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.84
10949	Styrene	100-42-5	1	U	1	0.84
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.84
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.84
10949	Tetrachloroethene	127-18-4	2	J	1	0.84
10949	Toluene	108-88-3	1	U	1	0.84
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.84
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.84
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.84
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.84
10949	Trichloroethene	79-01-6	1	U	1	0.84
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.84
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.84
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.84
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.84
10949	Vinyl Acetate	108-05-4	2	U	2	0.84
10949	Vinyl Chloride	75-01-4	1	U	1	0.84
10949	m+p-Xylene	179601-23-1	1	U	1	0.84
10949	o-Xylene	95-47-6	1	U	1	0.84

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: carbon disulfide; 1,2-dichloropropane and cis-1,3-dichloropropene.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	20	U	20	5
10727	Acenaphthylene	208-96-8	20	U	20	5
10727	Anthracene	120-12-7	20	U	20	5
10727	Benzo(a)anthracene	56-55-3	78	J	20	5
10727	Benzo(a)pyrene	50-32-8	73	J	20	5
10727	Benzo(b)fluoranthene	205-99-2	100		20	5
10727	Benzo(g,h,i)perylene	191-24-2	58	J	20	5
10727	Benzo(k)fluoranthene	207-08-9	47	J	20	5
10727	Benzyl alcohol	100-51-6	1,000	U	1,000	5
10727	1,1'-Biphenyl	92-52-4	680		100	5
10727	4-Bromophenyl-phenylether	101-55-3	100	U	100	5
10727	Butylbenzylphthalate	85-68-7	410	U	410	5
10727	Di-n-butylphthalate	84-74-2	410	U	410	5
10727	Carbazole	86-74-8	100	U	100	5
10727	4-Chloro-3-methylphenol	59-50-7	100	U	100	5
10727	4-Chloroaniline	106-47-8	100	U	100	5
10727	bis(2-Chloroethoxy)methane	111-91-1	100	U	100	5
10727	bis(2-Chloroethyl)ether	111-44-4	100	U	100	5
10727	2-Chloronaphthalene	91-58-7	43	U	43	5
10727	2-Chlorophenol	95-57-8	100	U	100	5
10727	4-Chlorophenyl-phenylether	7005-72-3	100	U	100	5
10727	Chrysene	218-01-9	92	J	20	5
10727	Dibenz(a,h)anthracene	53-70-3	20	U	20	5
10727	Dibenzofuran	132-64-9	100	U	100	5
10727	3,3'-Dichlorobenzidine	91-94-1	610	U	610	5

Sample Description: S01-SS06-0002-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497529
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 15:10 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S6002 SDG#: DHR06-14

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dichlorophenol	120-83-2	100	U	100	5
10727	Diethylphthalate	84-66-2	410	U	410	5
10727	2,4-Dimethylphenol	105-67-9	100	U	100	5
10727	Dimethylphthalate	131-11-3	410	U	410	5
10727	4,6-Dinitro-2-methylphenol	534-52-1	1,000	U	1,000	5
10727	2,4-Dinitrophenol	51-28-5	2,000	U	2,000	5
10727	2,4-Dinitrotoluene	121-14-2	410	U	410	5
10727	2,6-Dinitrotoluene	606-20-2	100	U	100	5
10727	1,4-Dioxane	123-91-1	610	U	610	5
10727	bis(2-Ethylhexyl)phthalate	117-81-7	410	U	410	5
10727	Fluoranthene	206-44-0	130		20	5
10727	Fluorene	86-73-7	20	U	20	5
10727	Hexachlorobenzene	118-74-1	20	U	20	5
10727	Hexachlorocyclopentadiene	77-47-4	1,000	U	1,000	5
10727	Hexachloroethane	67-72-1	200	U	200	5
10727	Indeno(1,2,3-cd)pyrene	193-39-5	51	J	20	5
10727	Isophorone	78-59-1	100	U	100	5
10727	2-Methylnaphthalene	91-57-6	20	U	20	5
10727	2-Methylphenol	95-48-7	100	U	100	5
10727	4-Methylphenol	106-44-5	100	U	100	5
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	100	U	100	5
10727	3-Nitroaniline	99-09-2	410	U	410	5
10727	4-Nitroaniline	100-01-6	410	U	410	5
10727	Nitrobenzene	98-95-3	100	U	100	5
10727	2-Nitrophenol	88-75-5	100	U	100	5
10727	4-Nitrophenol	100-02-7	1,000	U	1,000	5
10727	N-Nitroso-di-n-propylamine	621-64-7	100	U	100	5
10727	N-Nitrosodiphenylamine	86-30-6	100	U	100	5
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	410	U	410	5
10727	Pentachlorophenol	87-86-5	200	U	200	5
10727	Phenanthrene	85-01-8	73	J	20	5
10727	Phenol	108-95-2	100	U	100	5
10727	Pyrene	129-00-0	120		20	5
10727	2,4,5-Trichlorophenol	95-95-4	100	U	100	5
10727	2,4,6-Trichlorophenol	88-06-2	100	U	100	5
	Reporting limits were raised due to interference from the sample matrix.					
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	107		0.0213	1
06949	Cadmium	7440-43-9	1.04		0.0236	1
06951	Chromium	7440-47-3	34.9		0.165	1
06955	Lead	7439-92-1	73.5		0.260	1
06936	Selenium	7782-49-2	0.803	U	0.803	1
06966	Silver	7440-22-4	0.0980	U	0.0980	1

Lancaster Laboratories

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Analysis Report

Sample Description: S01-SS06-0002-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497529
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 15:10 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S6002 SDG#: DHR06-14

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 6020**		**mg/kg**	**mg/kg**	
06125	Arsenic	7440-38-2	11.3	0.0945	2
	SW-846 7471A		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0204 J	0.0080	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	17.8	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113551AA	12/21/2011 19:59	Chelsea B Eastep	0.84
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134726425	12/13/2011 13:28	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134726425	12/13/2011 13:28	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134726425	12/13/2011 13:27	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11348SLC026	12/16/2011 12:26	Brian K Graham	5
10809	BNA Soil Microwave	SW-846 3546	1	11348SLC026	12/14/2011 17:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	113485708002	12/19/2011 06:10	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	113485708002	12/19/2011 06:10	Tara L Snyder	1
06951	Chromium	SW-846 6010B	1	113485708002	12/19/2011 06:10	Tara L Snyder	1
06955	Lead	SW-846 6010B	1	113485708002	12/19/2011 06:10	Tara L Snyder	1
06936	Selenium	SW-846 6010B	1	113485708002	12/19/2011 06:10	Tara L Snyder	1
06966	Silver	SW-846 6010B	1	113485708002	12/19/2011 06:10	Tara L Snyder	1
06125	Arsenic	SW-846 6020	1	113481026002A	12/21/2011 10:15	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113485711003	12/16/2011 07:24	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113485708002	12/15/2011 10:28	James L Mertz	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113481026002	12/15/2011 11:07	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113485711003	12/15/2011 11:55	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11349820005A	12/15/2011 17:39	Scott W Freisher	1

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Analysis Report

Sample Description: S01-SS06-0305-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497530
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 15:15 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S6305 SDG#: DHR06-15

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	33		7	0.8
10949	Benzene	71-43-2	0.5	U	0.5	0.8
10949	Bromobenzene	108-86-1	1	U	1	0.8
10949	Bromochloromethane	74-97-5	1	U	1	0.8
10949	Bromodichloromethane	75-27-4	1	U	1	0.8
10949	Bromoform	75-25-2	1	U	1	0.8
10949	Bromomethane	74-83-9	2	U	2	0.8
10949	2-Butanone	78-93-3	4	J	4	0.8
10949	n-Butylbenzene	104-51-8	1	U	1	0.8
10949	sec-Butylbenzene	135-98-8	1	U	1	0.8
10949	tert-Butylbenzene	98-06-6	1	U	1	0.8
10949	Carbon Disulfide	75-15-0	1	U	1	0.8
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.8
10949	Chlorobenzene	108-90-7	1	U	1	0.8
10949	Chloroethane	75-00-3	2	U	2	0.8
10949	Chloroform	67-66-3	1	U	1	0.8
10949	Chloromethane	74-87-3	2	U	2	0.8
10949	2-Chlorotoluene	95-49-8	1	U	1	0.8
10949	4-Chlorotoluene	106-43-4	1	U	1	0.8
10949	Cyclohexane	110-82-7	1	U	1	0.8
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.8
10949	Dibromochloromethane	124-48-1	1	U	1	0.8
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.8
10949	Dibromomethane	74-95-3	1	U	1	0.8
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.8
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.8
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.8
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.8
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.8
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.8
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.8
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.8
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.8
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.8
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.8
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.8
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.8
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.8
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.8
10949	Ethylbenzene	100-41-4	1	U	1	0.8
10949	Freon 113	76-13-1	2	U	2	0.8
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.8
10949	2-Hexanone	591-78-6	3	U	3	0.8
10949	Isopropylbenzene	98-82-8	1	U	1	0.8
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.8
10949	Methyl Acetate	79-20-9	2	U	2	0.8
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.8
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.8
10949	Methylcyclohexane	108-87-2	1	U	1	0.8
10949	Methylene Chloride	75-09-2	2	U	2	0.8
10949	Naphthalene	91-20-3	1	U	1	0.8

Sample Description: S01-SS06-0305-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497530
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 15:15 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S6305 SDG#: DHR06-15

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.8
10949	Styrene	100-42-5	1	U	1	0.8
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.8
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.8
10949	Tetrachloroethene	127-18-4	2	J	1	0.8
10949	Toluene	108-88-3	1	U	1	0.8
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.8
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.8
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.8
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.8
10949	Trichloroethene	79-01-6	1	U	1	0.8
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.8
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.8
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.8
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.8
10949	Vinyl Acetate	108-05-4	2	U	2	0.8
10949	Vinyl Chloride	75-01-4	1	U	1	0.8
10949	m+p-Xylene	179601-23-1	1	U	1	0.8
10949	o-Xylene	95-47-6	1	U	1	0.8

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: carbon disulfide; 1,2-dichloropropane and cis-1,3-dichloropropene.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	20	U	20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	82	U	82	1
10727	Di-n-butylphthalate	84-74-2	82	U	82	1
10727	Carbazole	86-74-8	20	U	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	20	U	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1

Sample Description: S01-SS06-0305-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497530
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 15:15 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S6305 SDG#: DHR06-15

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1
10727	Diethylphthalate	84-66-2	82	U	82	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	82	U	82	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1
10727	2,4-Dinitrophenol	51-28-5	410	U	410	1
10727	2,4-Dinitrotoluene	121-14-2	82	U	82	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	82	U	82	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	41	U	41	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	82	U	82	1
10727	4-Nitroaniline	100-01-6	82	U	82	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	82	U	82	1
10727	Pentachlorophenol	87-86-5	41	U	41	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	20	U	20	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	62.1		0.0216	1
06949	Cadmium	7440-43-9	1.00		0.0240	1
06951	Chromium	7440-47-3	21.5		0.168	1
06955	Lead	7439-92-1	16.1		0.264	1
06936	Selenium	7782-49-2	0.816	U	0.816	1
06966	Silver	7440-22-4	0.0996	U	0.0996	1
	SW-846 6020		**mg/kg**		**mg/kg**	

Lancaster Laboratories

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Analysis Report

Sample Description: S01-SS06-0305-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497530
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 15:15 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S6305 SDG#: DHR06-15

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 6020**		**mg/kg**	**mg/kg**	
06125	Arsenic	7440-38-2	13.8	0.0942	2
	SW-846 7471A		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0482 J	0.0084	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	18.3	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113551AA	12/21/2011 20:22	Chelsea B Eastep	0.8
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134726425	12/13/2011 13:30	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134726425	12/13/2011 13:30	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134726425	12/13/2011 13:29	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11348SLC026	12/16/2011 12:50	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11348SLC026	12/14/2011 17:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	113485708002	12/19/2011 06:20	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	113485708002	12/19/2011 06:20	Tara L Snyder	1
06951	Chromium	SW-846 6010B	1	113485708002	12/19/2011 06:20	Tara L Snyder	1
06955	Lead	SW-846 6010B	1	113485708002	12/19/2011 06:20	Tara L Snyder	1
06936	Selenium	SW-846 6010B	1	113485708002	12/19/2011 06:20	Tara L Snyder	1
06966	Silver	SW-846 6010B	1	113485708002	12/19/2011 06:20	Tara L Snyder	1
06125	Arsenic	SW-846 6020	1	113481026002A	12/21/2011 10:19	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113485711003	12/16/2011 07:25	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113485708002	12/15/2011 10:28	James L Mertz	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113481026002	12/15/2011 11:07	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113485711003	12/15/2011 11:55	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11349820005A	12/15/2011 17:39	Scott W Freisher	1

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Analysis Report

Sample Description: S01-SS06-0810-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497531
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 15:20 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S6810 SDG#: DHR06-16

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	20		7	0.8
10949	Benzene	71-43-2	0.5	U	0.5	0.8
10949	Bromobenzene	108-86-1	1	U	1	0.8
10949	Bromochloromethane	74-97-5	1	U	1	0.8
10949	Bromodichloromethane	75-27-4	1	U	1	0.8
10949	Bromoform	75-25-2	1	U	1	0.8
10949	Bromomethane	74-83-9	2	U	2	0.8
10949	2-Butanone	78-93-3	4	U	4	0.8
10949	n-Butylbenzene	104-51-8	1	U	1	0.8
10949	sec-Butylbenzene	135-98-8	1	U	1	0.8
10949	tert-Butylbenzene	98-06-6	1	U	1	0.8
10949	Carbon Disulfide	75-15-0	1	U	1	0.8
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.8
10949	Chlorobenzene	108-90-7	1	U	1	0.8
10949	Chloroethane	75-00-3	2	U	2	0.8
10949	Chloroform	67-66-3	1	U	1	0.8
10949	Chloromethane	74-87-3	2	U	2	0.8
10949	2-Chlorotoluene	95-49-8	1	U	1	0.8
10949	4-Chlorotoluene	106-43-4	1	U	1	0.8
10949	Cyclohexane	110-82-7	1	U	1	0.8
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.8
10949	Dibromochloromethane	124-48-1	1	U	1	0.8
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.8
10949	Dibromomethane	74-95-3	1	U	1	0.8
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.8
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.8
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.8
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.8
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.8
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.8
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.8
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.8
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.8
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.8
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.8
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.8
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.8
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.8
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.8
10949	Ethylbenzene	100-41-4	1	U	1	0.8
10949	Freon 113	76-13-1	2	U	2	0.8
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.8
10949	2-Hexanone	591-78-6	3	U	3	0.8
10949	Isopropylbenzene	98-82-8	1	U	1	0.8
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.8
10949	Methyl Acetate	79-20-9	2	U	2	0.8
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.8
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.8
10949	Methylcyclohexane	108-87-2	1	U	1	0.8
10949	Methylene Chloride	75-09-2	2	U	2	0.8
10949	Naphthalene	91-20-3	1	U	1	0.8

Sample Description: S01-SS06-0810-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497531
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 15:20 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S6810 SDG#: DHR06-16

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.8
10949	Styrene	100-42-5	1	U	1	0.8
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.8
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.8
10949	Tetrachloroethene	127-18-4	8		1	0.8
10949	Toluene	108-88-3	1	U	1	0.8
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.8
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.8
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.8
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.8
10949	Trichloroethene	79-01-6	1	U	1	0.8
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.8
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.8
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.8
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.8
10949	Vinyl Acetate	108-05-4	2	U	2	0.8
10949	Vinyl Chloride	75-01-4	1	U	1	0.8
10949	m+p-Xylene	179601-23-1	1	U	1	0.8
10949	o-Xylene	95-47-6	1	U	1	0.8

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: carbon disulfide; 1,2-dichloropropane and cis-1,3-dichloropropene.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	210	U	210	1
10727	1,1'-Biphenyl	92-52-4	21	U	21	1
10727	4-Bromophenyl-phenylether	101-55-3	21	U	21	1
10727	Butylbenzylphthalate	85-68-7	83	U	83	1
10727	Di-n-butylphthalate	84-74-2	83	U	83	1
10727	Carbazole	86-74-8	21	U	21	1
10727	4-Chloro-3-methylphenol	59-50-7	21	U	21	1
10727	4-Chloroaniline	106-47-8	21	U	21	1
10727	bis(2-Chloroethoxy)methane	111-91-1	21	U	21	1
10727	bis(2-Chloroethyl)ether	111-44-4	21	U	21	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	21	U	21	1
10727	4-Chlorophenyl-phenylether	7005-72-3	21	U	21	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	21	U	21	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1

Sample Description: S01-SS06-0810-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497531
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 15:20 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S6810 SDG#: DHR06-16

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dichlorophenol	120-83-2	21	U	21	1
10727	Diethylphthalate	84-66-2	83	U	83	1
10727	2,4-Dimethylphenol	105-67-9	21	U	21	1
10727	Dimethylphthalate	131-11-3	83	U	83	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	210	U	210	1
10727	2,4-Dinitrophenol	51-28-5	420	U	420	1
10727	2,4-Dinitrotoluene	121-14-2	83	U	83	1
10727	2,6-Dinitrotoluene	606-20-2	21	U	21	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	83	U	83	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	210	U	210	1
10727	Hexachloroethane	67-72-1	42	U	42	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	21	U	21	1
10727	2-Methylnaphthalene	91-57-6	5	J	4	1
10727	2-Methylphenol	95-48-7	21	U	21	1
10727	4-Methylphenol	106-44-5	21	U	21	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	21	U	21	1
10727	3-Nitroaniline	99-09-2	83	U	83	1
10727	4-Nitroaniline	100-01-6	83	U	83	1
10727	Nitrobenzene	98-95-3	21	U	21	1
10727	2-Nitrophenol	88-75-5	21	U	21	1
10727	4-Nitrophenol	100-02-7	210	U	210	1
10727	N-Nitroso-di-n-propylamine	621-64-7	21	U	21	1
10727	N-Nitrosodiphenylamine	86-30-6	21	U	21	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	83	U	83	1
10727	Pentachlorophenol	87-86-5	42	U	42	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	21	U	21	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	21	U	21	1
10727	2,4,6-Trichlorophenol	88-06-2	21	U	21	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	70.9		0.0222	1
06949	Cadmium	7440-43-9	0.869		0.0247	1
06951	Chromium	7440-47-3	14.9		0.173	1
06955	Lead	7439-92-1	12.6		0.271	1
06936	Selenium	7782-49-2	0.838	U	0.838	1
06966	Silver	7440-22-4	0.102	U	0.102	1
	SW-846 6020		**mg/kg**		**mg/kg**	

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Analysis Report

Sample Description: S01-SS06-0810-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497531
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 15:20 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S6810 SDG#: DHR06-16

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 6020**		**mg/kg**	**mg/kg**	
06125	Arsenic	7440-38-2	10.8	0.0986	2
	SW-846 7471A		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0137 J	0.0084	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	19.7	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113551AA	12/21/2011 20:44	Chelsea B Eastep	0.8
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134726425	12/13/2011 13:32	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134726425	12/13/2011 13:32	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134726425	12/13/2011 13:31	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11348SLC026	12/16/2011 13:14	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11348SLC026	12/14/2011 17:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	113485708002	12/19/2011 06:24	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	113485708002	12/19/2011 06:24	Tara L Snyder	1
06951	Chromium	SW-846 6010B	1	113485708002	12/19/2011 06:24	Tara L Snyder	1
06955	Lead	SW-846 6010B	1	113485708002	12/19/2011 06:24	Tara L Snyder	1
06936	Selenium	SW-846 6010B	1	113485708002	12/19/2011 06:24	Tara L Snyder	1
06966	Silver	SW-846 6010B	1	113485708002	12/19/2011 06:24	Tara L Snyder	1
06125	Arsenic	SW-846 6020	1	113481026002A	12/21/2011 10:21	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113485711003	12/16/2011 07:27	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113485708002	12/15/2011 10:28	James L Mertz	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113481026002	12/15/2011 11:07	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113485711003	12/15/2011 11:55	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11349820005A	12/15/2011 17:39	Scott W Freisher	1

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Analysis Report

Sample Description: S01-SS06-1315-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497532
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 15:25 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S613- SDG#: DHR06-17

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	21	J	8	1.14
10949	Benzene	71-43-2	0.6	U	0.6	1.14
10949	Bromobenzene	108-86-1	1	U	1	1.14
10949	Bromochloromethane	74-97-5	1	U	1	1.14
10949	Bromodichloromethane	75-27-4	1	U	1	1.14
10949	Bromoform	75-25-2	1	U	1	1.14
10949	Bromomethane	74-83-9	2	U	2	1.14
10949	2-Butanone	78-93-3	5	U	5	1.14
10949	n-Butylbenzene	104-51-8	1	U	1	1.14
10949	sec-Butylbenzene	135-98-8	1	U	1	1.14
10949	tert-Butylbenzene	98-06-6	1	U	1	1.14
10949	Carbon Disulfide	75-15-0	1	U	1	1.14
10949	Carbon Tetrachloride	56-23-5	1	U	1	1.14
10949	Chlorobenzene	108-90-7	1	U	1	1.14
10949	Chloroethane	75-00-3	2	U	2	1.14
10949	Chloroform	67-66-3	1	U	1	1.14
10949	Chloromethane	74-87-3	2	U	2	1.14
10949	2-Chlorotoluene	95-49-8	1	U	1	1.14
10949	4-Chlorotoluene	106-43-4	1	U	1	1.14
10949	Cyclohexane	110-82-7	1	U	1	1.14
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	1.14
10949	Dibromochloromethane	124-48-1	1	U	1	1.14
10949	1,2-Dibromoethane	106-93-4	1	U	1	1.14
10949	Dibromomethane	74-95-3	1	U	1	1.14
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	1.14
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	1.14
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	1.14
10949	Dichlorodifluoromethane	75-71-8	2	U	2	1.14
10949	1,1-Dichloroethane	75-34-3	1	U	1	1.14
10949	1,2-Dichloroethane	107-06-2	1	U	1	1.14
10949	1,1-Dichloroethene	75-35-4	1	U	1	1.14
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	1.14
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	1.14
10949	1,2-Dichloropropane	78-87-5	1	U	1	1.14
10949	1,3-Dichloropropane	142-28-9	1	U	1	1.14
10949	2,2-Dichloropropane	594-20-7	1	U	1	1.14
10949	1,1-Dichloropropene	563-58-6	1	U	1	1.14
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	1.14
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	1.14
10949	Ethylbenzene	100-41-4	1	U	1	1.14
10949	Freon 113	76-13-1	2	U	2	1.14
10949	Hexachlorobutadiene	87-68-3	2	U	2	1.14
10949	2-Hexanone	591-78-6	4	U	4	1.14
10949	Isopropylbenzene	98-82-8	1	U	1	1.14
10949	p-Isopropyltoluene	99-87-6	1	U	1	1.14
10949	Methyl Acetate	79-20-9	2	U	2	1.14
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.6	U	0.6	1.14
10949	4-Methyl-2-pentanone	108-10-1	4	U	4	1.14
10949	Methylcyclohexane	108-87-2	1	U	1	1.14
10949	Methylene Chloride	75-09-2	2	U	2	1.14
10949	Naphthalene	91-20-3	1	U	1	1.14

Sample Description: S01-SS06-1315-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497532
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 15:25 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S613- SDG#: DHR06-17

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	1.14
10949	Styrene	100-42-5	1	U	1	1.14
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	1.14
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	1.14
10949	Tetrachloroethene	127-18-4	10		1	1.14
10949	Toluene	108-88-3	1	U	1	1.14
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	1.14
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	1.14
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	1.14
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	1.14
10949	Trichloroethene	79-01-6	1	U	1	1.14
10949	Trichlorofluoromethane	75-69-4	2	U	2	1.14
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	1.14
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	1.14
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	1.14
10949	Vinyl Acetate	108-05-4	2	U	2	1.14
10949	Vinyl Chloride	75-01-4	1	U	1	1.14
10949	m+p-Xylene	179601-23-1	1	U	1	1.14
10949	o-Xylene	95-47-6	1	U	1	1.14

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: carbon disulfide; 1,2-dichloropropane and cis-1,3-dichloropropene.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	3	U	3	1
10727	Acenaphthylene	208-96-8	3	U	3	1
10727	Anthracene	120-12-7	3	U	3	1
10727	Benzo(a)anthracene	56-55-3	3	U	3	1
10727	Benzo(a)pyrene	50-32-8	3	U	3	1
10727	Benzo(b)fluoranthene	205-99-2	3	U	3	1
10727	Benzo(g,h,i)perylene	191-24-2	3	U	3	1
10727	Benzo(k)fluoranthene	207-08-9	3	U	3	1
10727	Benzyl alcohol	100-51-6	170	U	170	1
10727	1,1'-Biphenyl	92-52-4	17	U	17	1
10727	4-Bromophenyl-phenylether	101-55-3	17	U	17	1
10727	Butylbenzylphthalate	85-68-7	69	U	69	1
10727	Di-n-butylphthalate	84-74-2	69	U	69	1
10727	Carbazole	86-74-8	17	U	17	1
10727	4-Chloro-3-methylphenol	59-50-7	17	U	17	1
10727	4-Chloroaniline	106-47-8	17	U	17	1
10727	bis(2-Chloroethoxy)methane	111-91-1	17	U	17	1
10727	bis(2-Chloroethyl)ether	111-44-4	17	U	17	1
10727	2-Chloronaphthalene	91-58-7	7	U	7	1
10727	2-Chlorophenol	95-57-8	17	U	17	1
10727	4-Chlorophenyl-phenylether	7005-72-3	17	U	17	1
10727	Chrysene	218-01-9	3	U	3	1
10727	Dibenz(a,h)anthracene	53-70-3	3	U	3	1
10727	Dibenzofuran	132-64-9	17	U	17	1
10727	3,3'-Dichlorobenzidine	91-94-1	100	U	100	1

Sample Description: S01-SS06-1315-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497532
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 15:25 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S613- SDG#: DHR06-17

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dichlorophenol	120-83-2	17	U	17	1
10727	Diethylphthalate	84-66-2	69	U	69	1
10727	2,4-Dimethylphenol	105-67-9	17	U	17	1
10727	Dimethylphthalate	131-11-3	69	U	69	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	170	U	170	1
10727	2,4-Dinitrophenol	51-28-5	350	U	350	1
10727	2,4-Dinitrotoluene	121-14-2	69	U	69	1
10727	2,6-Dinitrotoluene	606-20-2	17	U	17	1
10727	1,4-Dioxane	123-91-1	100	U	100	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	69	U	69	1
10727	Fluoranthene	206-44-0	3	U	3	1
10727	Fluorene	86-73-7	3	U	3	1
10727	Hexachlorobenzene	118-74-1	3	U	3	1
10727	Hexachlorocyclopentadiene	77-47-4	170	U	170	1
10727	Hexachloroethane	67-72-1	35	U	35	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	3	U	3	1
10727	Isophorone	78-59-1	17	U	17	1
10727	2-Methylnaphthalene	91-57-6	3	U	3	1
10727	2-Methylphenol	95-48-7	17	U	17	1
10727	4-Methylphenol	106-44-5	17	U	17	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	17	U	17	1
10727	3-Nitroaniline	99-09-2	69	U	69	1
10727	4-Nitroaniline	100-01-6	69	U	69	1
10727	Nitrobenzene	98-95-3	17	U	17	1
10727	2-Nitrophenol	88-75-5	17	U	17	1
10727	4-Nitrophenol	100-02-7	170	U	170	1
10727	N-Nitroso-di-n-propylamine	621-64-7	17	U	17	1
10727	N-Nitrosodiphenylamine	86-30-6	17	U	17	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	69	U	69	1
10727	Pentachlorophenol	87-86-5	35	U	35	1
10727	Phenanthrene	85-01-8	3	U	3	1
10727	Phenol	108-95-2	17	U	17	1
10727	Pyrene	129-00-0	3	U	3	1
10727	2,4,5-Trichlorophenol	95-95-4	17	U	17	1
10727	2,4,6-Trichlorophenol	88-06-2	17	U	17	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	70.1		0.0181	1
06949	Cadmium	7440-43-9	0.576		0.0201	1
06951	Chromium	7440-47-3	9.49		0.141	1
06955	Lead	7439-92-1	6.57		0.222	1
06936	Selenium	7782-49-2	0.685	U	0.685	1
06966	Silver	7440-22-4	0.0836	U	0.0836	1
	SW-846 6020		**mg/kg**		**mg/kg**	

Lancaster Laboratories

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Analysis Report

Sample Description: S01-SS06-1315-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497532
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 15:25 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S613- SDG#: DHR06-17

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 6020**		**mg/kg**	**mg/kg**	
06125	Arsenic	7440-38-2	7.92	0.0822	2
	SW-846 7471A		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0071 U	0.0071	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	3.6	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113551AA	12/21/2011 21:07	Chelsea B Eastep	1.14
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134726425	12/13/2011 13:34	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134726425	12/13/2011 13:34	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134726425	12/13/2011 13:33	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11348SLC026	12/16/2011 13:38	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11348SLC026	12/14/2011 17:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	113485708002	12/19/2011 06:27	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	113485708002	12/19/2011 06:27	Tara L Snyder	1
06951	Chromium	SW-846 6010B	1	113485708002	12/19/2011 06:27	Tara L Snyder	1
06955	Lead	SW-846 6010B	1	113485708002	12/19/2011 06:27	Tara L Snyder	1
06936	Selenium	SW-846 6010B	1	113485708002	12/20/2011 04:51	Tara L Snyder	1
06966	Silver	SW-846 6010B	1	113485708002	12/19/2011 06:27	Tara L Snyder	1
06125	Arsenic	SW-846 6020	1	113481026002A	12/21/2011 10:23	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113485711003	12/16/2011 07:28	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113485708002	12/15/2011 10:28	James L Mertz	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113481026002	12/15/2011 11:07	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113485711003	12/15/2011 11:55	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11349820005A	12/15/2011 17:39	Scott W Freisher	1

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Sample Description: S01-SS09-0002-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497533
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 15:45 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S9002 SDG#: DHR06-18*

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	31		9	1.22
10949	Benzene	71-43-2	0.7	U	0.7	1.22
10949	Bromobenzene	108-86-1	1	U	1	1.22
10949	Bromochloromethane	74-97-5	1	U	1	1.22
10949	Bromodichloromethane	75-27-4	1	U	1	1.22
10949	Bromoform	75-25-2	1	U	1	1.22
10949	Bromomethane	74-83-9	3	U	3	1.22
10949	2-Butanone	78-93-3	9	J	5	1.22
10949	n-Butylbenzene	104-51-8	1	U	1	1.22
10949	sec-Butylbenzene	135-98-8	1	U	1	1.22
10949	tert-Butylbenzene	98-06-6	1	U	1	1.22
10949	Carbon Disulfide	75-15-0	10		1	1.22
10949	Carbon Tetrachloride	56-23-5	1	U	1	1.22
10949	Chlorobenzene	108-90-7	1	U	1	1.22
10949	Chloroethane	75-00-3	3	U	3	1.22
10949	Chloroform	67-66-3	1	U	1	1.22
10949	Chloromethane	74-87-3	3	U	3	1.22
10949	2-Chlorotoluene	95-49-8	1	U	1	1.22
10949	4-Chlorotoluene	106-43-4	1	U	1	1.22
10949	Cyclohexane	110-82-7	1	U	1	1.22
10949	1,2-Dibromo-3-chloropropane	96-12-8	3	U	3	1.22
10949	Dibromochloromethane	124-48-1	1	U	1	1.22
10949	1,2-Dibromoethane	106-93-4	1	U	1	1.22
10949	Dibromomethane	74-95-3	1	U	1	1.22
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	1.22
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	1.22
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	1.22
10949	Dichlorodifluoromethane	75-71-8	3	U	3	1.22
10949	1,1-Dichloroethane	75-34-3	1	U	1	1.22
10949	1,2-Dichloroethane	107-06-2	1	U	1	1.22
10949	1,1-Dichloroethene	75-35-4	1	U	1	1.22
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	1.22
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	1.22
10949	1,2-Dichloropropane	78-87-5	1	U	1	1.22
10949	1,3-Dichloropropane	142-28-9	1	U	1	1.22
10949	2,2-Dichloropropane	594-20-7	1	U	1	1.22
10949	1,1-Dichloropropene	563-58-6	1	U	1	1.22
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	1.22
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	1.22
10949	Ethylbenzene	100-41-4	1	U	1	1.22
10949	Freon 113	76-13-1	3	U	3	1.22
10949	Hexachlorobutadiene	87-68-3	3	U	3	1.22
10949	2-Hexanone	591-78-6	4	U	4	1.22
10949	Isopropylbenzene	98-82-8	1	U	1	1.22
10949	p-Isopropyltoluene	99-87-6	1	U	1	1.22
10949	Methyl Acetate	79-20-9	3	U	3	1.22
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.7	U	0.7	1.22
10949	4-Methyl-2-pentanone	108-10-1	4	U	4	1.22
10949	Methylcyclohexane	108-87-2	1	U	1	1.22
10949	Methylene Chloride	75-09-2	3	U	3	1.22
10949	Naphthalene	91-20-3	1	U	1	1.22

Sample Description: S01-SS09-0002-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497533
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 15:45 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S9002 SDG#: DHR06-18*

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	1.22
10949	Styrene	100-42-5	1	U	1	1.22
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	1.22
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	1.22
10949	Tetrachloroethene	127-18-4	53		1	1.22
10949	Toluene	108-88-3	1	U	1	1.22
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	1.22
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	1.22
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	1.22
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	1.22
10949	Trichloroethene	79-01-6	3	J	1	1.22
10949	Trichlorofluoromethane	75-69-4	3	U	3	1.22
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	1.22
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	1.22
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	1.22
10949	Vinyl Acetate	108-05-4	3	U	3	1.22
10949	Vinyl Chloride	75-01-4	1	U	1	1.22
10949	m+p-Xylene	179601-23-1	1	U	1	1.22
10949	o-Xylene	95-47-6	1	U	1	1.22

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: carbon disulfide; 1,2-dichloropropane and cis-1,3-dichloropropene.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	47		4	1
10727	Acenaphthylene	208-96-8	1,100		4	1
10727	Anthracene	120-12-7	1,200		4	1
10727	Benzo(a)anthracene	56-55-3	3,700		4	1
10727	Benzo(a)pyrene	50-32-8	3,800		4	1
10727	Benzo(b)fluoranthene	205-99-2	5,800	E	4	1
10727	Benzo(g,h,i)perylene	191-24-2	3,000		4	1
10727	Benzo(k)fluoranthene	207-08-9	1,800		4	1
10727	Benzyl alcohol	100-51-6	180	U	180	1
10727	1,1'-Biphenyl	92-52-4	18	U	18	1
10727	4-Bromophenyl-phenylether	101-55-3	18	U	18	1
10727	Butylbenzylphthalate	85-68-7	74	U	74	1
10727	Di-n-butylphthalate	84-74-2	74	U	74	1
10727	Carbazole	86-74-8	120		18	1
10727	4-Chloro-3-methylphenol	59-50-7	18	U	18	1
10727	4-Chloroaniline	106-47-8	18	U	18	1
10727	bis(2-Chloroethoxy)methane	111-91-1	18	U	18	1
10727	bis(2-Chloroethyl)ether	111-44-4	18	U	18	1
10727	2-Chloronaphthalene	91-58-7	8	U	8	1
10727	2-Chlorophenol	95-57-8	18	U	18	1
10727	4-Chlorophenyl-phenylether	7005-72-3	18	U	18	1
10727	Chrysene	218-01-9	3,500		4	1
10727	Dibenz(a,h)anthracene	53-70-3	890		4	1
10727	Dibenzofuran	132-64-9	51		18	1
10727	3,3'-Dichlorobenzidine	91-94-1	110	U	110	1

Sample Description: S01-SS09-0002-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497533
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 15:45 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S9002 SDG#: DHR06-18*

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dichlorophenol	120-83-2	18	U	18	1
10727	Diethylphthalate	84-66-2	74	U	74	1
10727	2,4-Dimethylphenol	105-67-9	25	J	18	1
10727	Dimethylphthalate	131-11-3	74	U	74	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	180	U	180	1
10727	2,4-Dinitrophenol	51-28-5	370	U	370	1
10727	2,4-Dinitrotoluene	121-14-2	74	U	74	1
10727	2,6-Dinitrotoluene	606-20-2	18	U	18	1
10727	1,4-Dioxane	123-91-1	110	U	110	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	74	U	74	1
10727	Fluoranthene	206-44-0	5,000	E	4	1
10727	Fluorene	86-73-7	100		4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	180	U	180	1
10727	Hexachloroethane	67-72-1	37	U	37	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	2,700		4	1
10727	Isophorone	78-59-1	18	U	18	1
10727	2-Methylnaphthalene	91-57-6	26		4	1
10727	2-Methylphenol	95-48-7	18	U	18	1
10727	4-Methylphenol	106-44-5	63		18	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	18	U	18	1
10727	3-Nitroaniline	99-09-2	74	U	74	1
10727	4-Nitroaniline	100-01-6	74	U	74	1
10727	Nitrobenzene	98-95-3	18	U	18	1
10727	2-Nitrophenol	88-75-5	18	U	18	1
10727	4-Nitrophenol	100-02-7	180	U	180	1
10727	N-Nitroso-di-n-propylamine	621-64-7	18	U	18	1
10727	N-Nitrosodiphenylamine	86-30-6	18	U	18	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	74	U	74	1
10727	Pentachlorophenol	87-86-5	37	U	37	1
10727	Phenanthrene	85-01-8	1,000		4	1
10727	Phenol	108-95-2	43		18	1
10727	Pyrene	129-00-0	4,400		4	1
10727	2,4,5-Trichlorophenol	95-95-4	18	U	18	1
10727	2,4,6-Trichlorophenol	88-06-2	18	U	18	1
Trial ID: DL						
10727	Acenaphthene	83-32-9	46	J	37	10
10727	Acenaphthylene	208-96-8	960		37	10
10727	Anthracene	120-12-7	810		37	10
10727	Benzo(a)anthracene	56-55-3	3,800		37	10
10727	Benzo(a)pyrene	50-32-8	3,800		37	10
10727	Benzo(b)fluoranthene	205-99-2	5,800		37	10
10727	Benzo(g,h,i)perylene	191-24-2	2,800		37	10
10727	Benzo(k)fluoranthene	207-08-9	2,100		37	10

Sample Description: S01-SS09-0002-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497533
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 15:45 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S9002 SDG#: DHR06-18*

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C			**ug/kg**		**ug/kg**	
10727	Benzyl alcohol	100-51-6	1,800	U	1,800	10
10727	1,1'-Biphenyl	92-52-4	180	U	180	10
10727	4-Bromophenyl-phenylether	101-55-3	180	U	180	10
10727	Butylbenzylphthalate	85-68-7	740	U	740	10
10727	Di-n-butylphthalate	84-74-2	740	U	740	10
10727	Carbazole	86-74-8	180	U	180	10
10727	4-Chloro-3-methylphenol	59-50-7	180	U	180	10
10727	4-Chloroaniline	106-47-8	180	U	180	10
10727	bis(2-Chloroethoxy)methane	111-91-1	180	U	180	10
10727	bis(2-Chloroethyl)ether	111-44-4	180	U	180	10
10727	2-Chloronaphthalene	91-58-7	77	U	77	10
10727	2-Chlorophenol	95-57-8	180	U	180	10
10727	4-Chlorophenyl-phenylether	7005-72-3	180	U	180	10
10727	Chrysene	218-01-9	3,600		37	10
10727	Dibenz(a,h)anthracene	53-70-3	800		37	10
10727	Dibenzofuran	132-64-9	180	U	180	10
10727	3,3'-Dichlorobenzidine	91-94-1	1,100	U	1,100	10
10727	2,4-Dichlorophenol	120-83-2	180	U	180	10
10727	Diethylphthalate	84-66-2	740	U	740	10
10727	2,4-Dimethylphenol	105-67-9	180	U	180	10
10727	Dimethylphthalate	131-11-3	740	U	740	10
10727	4,6-Dinitro-2-methylphenol	534-52-1	1,800	U	1,800	10
10727	2,4-Dinitrophenol	51-28-5	3,700	U	3,700	10
10727	2,4-Dinitrotoluene	121-14-2	740	U	740	10
10727	2,6-Dinitrotoluene	606-20-2	180	U	180	10
10727	1,4-Dioxane	123-91-1	1,100	U	1,100	10
10727	bis(2-Ethylhexyl)phthalate	117-81-7	740	U	740	10
10727	Fluoranthene	206-44-0	5,600		37	10
10727	Fluorene	86-73-7	110	J	37	10
10727	Hexachlorobenzene	118-74-1	37	U	37	10
10727	Hexachlorocyclopentadiene	77-47-4	1,800	U	1,800	10
10727	Hexachloroethane	67-72-1	370	U	370	10
10727	Indeno(1,2,3-cd)pyrene	193-39-5	2,600		37	10
10727	Isophorone	78-59-1	180	U	180	10
10727	2-Methylnaphthalene	91-57-6	37	U	37	10
10727	2-Methylphenol	95-48-7	180	U	180	10
10727	4-Methylphenol	106-44-5	180	U	180	10
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	180	U	180	10
10727	3-Nitroaniline	99-09-2	740	U	740	10
10727	4-Nitroaniline	100-01-6	740	U	740	10
10727	Nitrobenzene	98-95-3	180	U	180	10
10727	2-Nitrophenol	88-75-5	180	U	180	10
10727	4-Nitrophenol	100-02-7	1,800	U	1,800	10
10727	N-Nitroso-di-n-propylamine	621-64-7	180	U	180	10
10727	N-Nitrosodiphenylamine	86-30-6	180	U	180	10
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					

Sample Description: S01-SS09-0002-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497533
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 15:45 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S9002 SDG#: DHR06-18*

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Di-n-octylphthalate	117-84-0	740	U	740	10
10727	Pentachlorophenol	87-86-5	370	U	370	10
10727	Phenanthrene	85-01-8	1,100		37	10
10727	Phenol	108-95-2	180	U	180	10
10727	Pyrene	129-00-0	4,800		37	10
10727	2,4,5-Trichlorophenol	95-95-4	180	U	180	10
10727	2,4,6-Trichlorophenol	88-06-2	180	U	180	10
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	859		0.0996	5
06949	Cadmium	7440-43-9	0.0420 J		0.0221	1
06951	Chromium	7440-47-3	44.4		0.155	1
06955	Lead	7439-92-1	5.58		0.243	1
06936	Selenium	7782-49-2	15.1		0.752	1
06966	Silver	7440-22-4	0.256 J		0.0918	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	6.57		0.0868	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0214 J		0.0075	1
Wet Chemistry	**SM20 2540 G**		**%**		**%**	
00111	Moisture	n.a.	9.6		0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113551AA	12/21/2011 21:30	Chelsea B Eastep	1.22
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134726425	12/13/2011 13:36	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134726425	12/13/2011 13:36	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134726425	12/13/2011 13:35	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11348SLC026	12/16/2011 14:03	Brian K Graham	1
10727	TCL 8270 (microwave)	SW-846 8270C	2	11348SLC026	12/17/2011 05:35	Brian K Graham	10
10809	BNA Soil Microwave	SW-846 3546	1	11348SLC026	12/14/2011 17:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	113485708002	12/20/2011 05:09	Tara L Snyder	5
06949	Cadmium	SW-846 6010B	1	113485708002	12/19/2011 06:31	Tara L Snyder	1
06951	Chromium	SW-846 6010B	1	113485708002	12/19/2011 06:31	Tara L Snyder	1
06955	Lead	SW-846 6010B	1	113485708002	12/19/2011 06:31	Tara L Snyder	1

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Sample Description: S01-SS09-0002-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497533
LLI Group # 1280700
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 15:45 by OO

Submitted: 12/13/2011 09:35
Reported: 12/23/2011 18:49

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S9002 SDG#: DHR06-18*

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06936	Selenium	SW-846 6010B	1	113485708002	12/20/2011 04:55	Tara L Snyder	1
06966	Silver	SW-846 6010B	1	113485708002	12/19/2011 06:31	Tara L Snyder	1
06125	Arsenic	SW-846 6020	1	113481026002A	12/21/2011 10:24	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113485711003	12/16/2011 07:29	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113485708002	12/15/2011 10:28	James L Mertz	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113481026002	12/15/2011 11:07	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113485711003	12/15/2011 11:55	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11349820005A	12/15/2011 17:39	Scott W Freisher	1

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280700
Reported: 12/23/11 at 06:49 PM

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: A113551AA	Sample number(s): 6497520-6497533								
Acetone	7	U	7.	ug/kg	82	80	32-209	2	30
Benzene	0.5	U	0.5	ug/kg	82	82	80-120	0	30
Bromobenzene	1	U	1.	ug/kg	95	96	79-120	1	30
Bromochloromethane	1	U	1.	ug/kg	96	95	79-124	1	30
Bromodichloromethane	1	U	1.	ug/kg	84	85	78-120	1	30
Bromoform	1	U	1.	ug/kg	96	92	70-120	5	30
Bromomethane	2	U	2.	ug/kg	87	85	32-162	3	30
2-Butanone	4	U	4.	ug/kg	95	87	46-153	9	30
n-Butylbenzene	1	U	1.	ug/kg	89	89	72-120	0	30
sec-Butylbenzene	1	U	1.	ug/kg	94	92	75-120	2	30
tert-Butylbenzene	1	U	1.	ug/kg	95	93	75-120	2	30
Carbon Disulfide	1	U	1.	ug/kg	59*	58*	67-122	2	30
Carbon Tetrachloride	1	U	1.	ug/kg	93	90	69-122	4	30
Chlorobenzene	1	U	1.	ug/kg	93	92	80-120	1	30
Chloroethane	2	U	2.	ug/kg	80	77	37-154	4	30
Chloroform	1	U	1.	ug/kg	92	90	80-120	2	30
Chloromethane	2	U	2.	ug/kg	71	69	54-132	4	30
2-Chlorotoluene	1	U	1.	ug/kg	89	89	78-120	1	30
4-Chlorotoluene	1	U	1.	ug/kg	92	92	79-120	0	30
Cyclohexane	1	U	1.	ug/kg	75	73	62-121	3	30
1,2-Dibromo-3-chloropropane	2	U	2.	ug/kg	98	88	58-120	10	30
Dibromochloromethane	1	U	1.	ug/kg	93	91	77-120	2	30
1,2-Dibromoethane	1	U	1.	ug/kg	95	92	80-120	3	30
Dibromomethane	1	U	1.	ug/kg	86	84	80-120	2	30
1,2-Dichlorobenzene	1	U	1.	ug/kg	95	95	79-120	0	30
1,3-Dichlorobenzene	1	U	1.	ug/kg	95	96	78-120	1	30
1,4-Dichlorobenzene	1	U	1.	ug/kg	95	96	79-120	1	30
Dichlorodifluoromethane	2	U	2.	ug/kg	81	80	20-120	2	30
1,1-Dichloroethane	1	U	1.	ug/kg	83	83	80-120	0	30
1,2-Dichloroethane	1	U	1.	ug/kg	102	101	71-129	1	30
1,1-Dichloroethene	1	U	1.	ug/kg	75	74	73-123	2	30
cis-1,2-Dichloroethene	1	U	1.	ug/kg	83	83	80-120	0	30
trans-1,2-Dichloroethene	1	U	1.	ug/kg	80	80	79-120	1	30
1,2-Dichloropropane	1	U	1.	ug/kg	77*	76*	80-120	1	30
1,3-Dichloropropane	1	U	1.	ug/kg	88	87	80-120	1	30
2,2-Dichloropropane	1	U	1.	ug/kg	81	79	72-123	2	30
1,1-Dichloropropene	1	U	1.	ug/kg	85	84	77-120	2	30
cis-1,3-Dichloropropene	1	U	1.	ug/kg	77*	78*	80-120	1	30
trans-1,3-Dichloropropene	1	U	1.	ug/kg	83	83	77-120	1	30
Ethylbenzene	1	U	1.	ug/kg	92	93	80-120	1	30
Freon 113	2	U	2.	ug/kg	82	80	61-126	3	30
Hexachlorobutadiene	2	U	2.	ug/kg	114	111	57-120	3	30
2-Hexanone	3	U	3.	ug/kg	78	80	45-155	3	30
Isopropylbenzene	1	U	1.	ug/kg	98	97	76-120	1	30
p-Isopropyltoluene	1	U	1.	ug/kg	98	97	75-120	1	30

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280700

Reported: 12/23/11 at 06:49 PM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Methyl Acetate	2	U	2.	ug/kg	101	104	61-152	2	30
Methyl Tertiary Butyl Ether	0.5	U	0.5	ug/kg	87	87	74-121	0	30
4-Methyl-2-pentanone	3	U	3.	ug/kg	91	88	61-134	4	30
Methylcyclohexane	1	U	1.	ug/kg	92	91	57-138	1	30
Methylene Chloride	2	U	2.	ug/kg	78	78	76-124	0	30
Naphthalene	1	U	1.	ug/kg	100	96	59-123	3	30
n-Propylbenzene	1	U	1.	ug/kg	91	90	77-120	1	30
Styrene	1	U	1.	ug/kg	96	95	76-120	1	30
1,1,1,2-Tetrachloroethane	1	U	1.	ug/kg	98	97	80-120	1	30
1,1,2,2-Tetrachloroethane	1	U	1.	ug/kg	83	80	71-123	4	30
Tetrachloroethene	1	U	1.	ug/kg	104	104	77-120	0	30
Toluene	1	U	1.	ug/kg	87	88	80-120	0	30
1,2,3-Trichlorobenzene	1	U	1.	ug/kg	107	105	64-120	1	30
1,2,4-Trichlorobenzene	1	U	1.	ug/kg	99	101	68-120	2	30
1,1,1-Trichloroethane	1	U	1.	ug/kg	93	92	71-125	1	30
1,1,2-Trichloroethane	1	U	1.	ug/kg	88	88	80-120	0	30
Trichloroethene	1	U	1.	ug/kg	86	85	80-120	1	30
Trichlorofluoromethane	2	U	2.	ug/kg	103	99	58-133	4	30
1,2,3-Trichloropropane	1	U	1.	ug/kg	91	91	71-123	1	30
1,2,4-Trimethylbenzene	1	U	1.	ug/kg	93	93	79-120	1	30
1,3,5-Trimethylbenzene	1	U	1.	ug/kg	95	94	78-120	1	30
Vinyl Acetate	2	U	2.	ug/kg	79	79	56-137	1	30
Vinyl Chloride	1	U	1.	ug/kg	73	70	53-120	3	30
m+p-Xylene	1	U	1.	ug/kg	94	93	80-120	1	30
o-Xylene	1	U	1.	ug/kg	91	91	80-120	1	30

Batch number: X113541AA Sample number(s): 6497514-6497516,6497518-6497519

Acetone	7	U	7.	ug/kg	171	32-209
Benzene	0.5	U	0.5	ug/kg	97	80-120
Bromobenzene	1	U	1.	ug/kg	109	79-120
Bromochloromethane	1	U	1.	ug/kg	95	79-124
Bromodichloromethane	1	U	1.	ug/kg	94	78-120
Bromoform	1	U	1.	ug/kg	92	70-120
Bromomethane	2	U	2.	ug/kg	76	32-162
2-Butanone	4	U	4.	ug/kg	99	46-153
n-Butylbenzene	1	U	1.	ug/kg	89	72-120
sec-Butylbenzene	1	U	1.	ug/kg	103	75-120
tert-Butylbenzene	1	U	1.	ug/kg	106	75-120
Carbon Disulfide	1	U	1.	ug/kg	96	67-122
Carbon Tetrachloride	1	U	1.	ug/kg	98	69-122
Chlorobenzene	1	U	1.	ug/kg	102	80-120
Chloroethane	2	U	2.	ug/kg	76	37-154
Chloroform	1	U	1.	ug/kg	98	80-120
Chloromethane	2	U	2.	ug/kg	84	54-132
2-Chlorotoluene	1	U	1.	ug/kg	105	78-120
4-Chlorotoluene	1	U	1.	ug/kg	100	79-120
Cyclohexane	1	U	1.	ug/kg	100	62-121
1,2-Dibromo-3-chloropropane	2	U	2.	ug/kg	91	58-120
Dibromochloromethane	1	U	1.	ug/kg	99	77-120
1,2-Dibromoethane	1	U	1.	ug/kg	102	80-120
Dibromomethane	1	U	1.	ug/kg	94	80-120
1,2-Dichlorobenzene	1	U	1.	ug/kg	92	79-120
1,3-Dichlorobenzene	1	U	1.	ug/kg	100	78-120
1,4-Dichlorobenzene	1	U	1.	ug/kg	100	79-120
Dichlorodifluoromethane	2	U	2.	ug/kg	83	20-120
1,1-Dichloroethane	1	U	1.	ug/kg	99	80-120
1,2-Dichloroethane	1	U	1.	ug/kg	102	71-129
1,1-Dichloroethene	1	U	1.	ug/kg	100	73-123

*- Outside of specification

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280700
Reported: 12/23/11 at 06:49 PM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
cis-1,2-Dichloroethene	1	U	1.	ug/kg	98		80-120		
trans-1,2-Dichloroethene	1	U	1.	ug/kg	98		79-120		
1,2-Dichloropropane	1	U	1.	ug/kg	96		80-120		
1,3-Dichloropropane	1	U	1.	ug/kg	102		80-120		
2,2-Dichloropropane	1	U	1.	ug/kg	98		72-123		
1,1-Dichloropropene	1	U	1.	ug/kg	99		77-120		
cis-1,3-Dichloropropene	1	U	1.	ug/kg	91		80-120		
trans-1,3-Dichloropropene	1	U	1.	ug/kg	97		77-120		
Ethylbenzene	1	U	1.	ug/kg	101		80-120		
Freon 113	2	U	2.	ug/kg	99		61-126		
Hexachlorobutadiene	2	U	2.	ug/kg	118		57-120		
2-Hexanone	3	U	3.	ug/kg	105		45-155		
Isopropylbenzene	1	U	1.	ug/kg	102		76-120		
p-Isopropyltoluene	1	U	1.	ug/kg	102		75-120		
Methyl Acetate	2	U	2.	ug/kg	135		61-152		
Methyl Tertiary Butyl Ether	0.5	U	0.5	ug/kg	100		74-121		
4-Methyl-2-pentanone	3	U	3.	ug/kg	98		61-134		
Methylcyclohexane	1	U	1.	ug/kg	97		57-138		
Methylene Chloride	2	U	2.	ug/kg	98		76-124		
Naphthalene	1	U	1.	ug/kg	106		59-123		
n-Propylbenzene	1	U	1.	ug/kg	108		77-120		
Styrene	1	U	1.	ug/kg	97		76-120		
1,1,1,2-Tetrachloroethane	1	U	1.	ug/kg	99		80-120		
1,1,2,2-Tetrachloroethane	1	U	1.	ug/kg	109		71-123		
Tetrachloroethene	1	U	1.	ug/kg	105		77-120		
Toluene	1	U	1.	ug/kg	101		80-120		
1,2,3-Trichlorobenzene	1	U	1.	ug/kg	114		64-120		
1,2,4-Trichlorobenzene	1	U	1.	ug/kg	110		68-120		
1,1,1-Trichloroethane	1	U	1.	ug/kg	108		71-125		
1,1,2-Trichloroethane	1	U	1.	ug/kg	103		80-120		
Trichloroethene	1	U	1.	ug/kg	96		80-120		
Trichlorofluoromethane	2	U	2.	ug/kg	92		58-133		
1,2,3-Trichloropropane	1	U	1.	ug/kg	115		71-123		
1,2,4-Trimethylbenzene	1	U	1.	ug/kg	102		79-120		
1,3,5-Trimethylbenzene	1	U	1.	ug/kg	104		78-120		
Vinyl Acetate	2	U	2.	ug/kg	92		56-137		
Vinyl Chloride	1	U	1.	ug/kg	88		53-120		
m+p-Xylene	1	U	1.	ug/kg	101		80-120		
o-Xylene	1	U	1.	ug/kg	100		80-120		
Batch number: 11348SLC026	Sample number(s): 6497514-6497516,6497518-6497533								
Acenaphthene	3	U	3.	ug/kg	94		83-111		
Acenaphthylene	3	U	3.	ug/kg	105		68-120		
Anthracene	3	U	3.	ug/kg	97		83-111		
Benzo(a)anthracene	3	U	3.	ug/kg	94		82-111		
Benzo(a)pyrene	3	U	3.	ug/kg	101		63-138		
Benzo(b)fluoranthene	3	U	3.	ug/kg	103		61-133		
Benzo(g,h,i)perylene	3	U	3.	ug/kg	96		63-130		
Benzo(k)fluoranthene	3	U	3.	ug/kg	96		71-135		
Benzyl alcohol	170	U	170.	ug/kg	97		68-111		
1,1'-Biphenyl	17	U	17.	ug/kg	90		82-106		
4-Bromophenyl-phenylether	17	U	17.	ug/kg	95		79-117		
Butylbenzylphthalate	67	U	67.	ug/kg	91		77-125		
Di-n-butylphthalate	67	U	67.	ug/kg	94		79-112		
Carbazole	17	U	17.	ug/kg	95		83-111		
4-Chloro-3-methylphenol	17	U	17.	ug/kg	98		74-119		
4-Chloroaniline	17	U	17.	ug/kg	62		10-97		
bis(2-Chloroethoxy)methane	17	U	17.	ug/kg	90		82-113		

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280700
Reported: 12/23/11 at 06:49 PM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
bis(2-Chloroethyl)ether	17	U	17.	ug/kg	88		77-115		
2-Chloronaphthalene	7	U	7.	ug/kg	105		50-117		
2-Chlorophenol	17	U	17.	ug/kg	100		83-119		
4-Chlorophenyl-phenylether	17	U	17.	ug/kg	97		79-110		
Chrysene	3	U	3.	ug/kg	91		81-111		
Dibenz(a,h)anthracene	3	U	3.	ug/kg	99		67-129		
Dibenzofuran	17	U	17.	ug/kg	93		85-110		
3,3'-Dichlorobenzidine	100	U	100.	ug/kg	61		17-116		
2,4-Dichlorophenol	17	U	17.	ug/kg	103		87-117		
Diethylphthalate	67	U	67.	ug/kg	96		82-113		
2,4-Dimethylphenol	17	U	17.	ug/kg	97		83-120		
Dimethylphthalate	67	U	67.	ug/kg	97		85-111		
4,6-Dinitro-2-methylphenol	170	U	170.	ug/kg	98		60-113		
2,4-Dinitrophenol	330	U	330.	ug/kg	90		39-126		
2,4-Dinitrotoluene	67	U	67.	ug/kg	102		80-116		
2,6-Dinitrotoluene	17	U	17.	ug/kg	104		79-115		
1,4-Dioxane	100	U	100.	ug/kg	55		38-75		
bis(2-Ethylhexyl)phthalate	67	U	67.	ug/kg	91		75-124		
Fluoranthene	3	U	3.	ug/kg	98		80-113		
Fluorene	3	U	3.	ug/kg	96		81-117		
Hexachlorobenzene	3	U	3.	ug/kg	98		79-115		
Hexachlorocyclopentadiene	170	U	170.	ug/kg	101		64-127		
Hexachloroethane	33	U	33.	ug/kg	89		76-109		
Indeno(1,2,3-cd)pyrene	3	U	3.	ug/kg	99		64-128		
Isophorone	17	U	17.	ug/kg	89		72-107		
2-Methylnaphthalene	3	U	3.	ug/kg	95		79-110		
2-Methylphenol	17	U	17.	ug/kg	97		80-119		
4-Methylphenol	17	U	17.	ug/kg	95		74-116		
2-Nitroaniline	17	U	17.	ug/kg	104		83-118		
3-Nitroaniline	67	U	67.	ug/kg	98		66-114		
4-Nitroaniline	67	U	67.	ug/kg	77		52-92		
Nitrobenzene	17	U	17.	ug/kg	91		78-122		
2-Nitrophenol	17	U	17.	ug/kg	100		81-114		
4-Nitrophenol	170	U	170.	ug/kg	87		57-131		
N-Nitroso-di-n-propylamine	17	U	17.	ug/kg	85		70-113		
N-Nitrosodiphenylamine	17	U	17.	ug/kg	98		86-112		
Di-n-octylphthalate	67	U	67.	ug/kg	103		65-141		
Pentachlorophenol	33	U	33.	ug/kg	97		50-133		
Phenanthrene	3	U	3.	ug/kg	91		83-109		
Phenol	17	U	17.	ug/kg	89		74-115		
Pyrene	3	U	3.	ug/kg	92		80-121		
2,4,5-Trichlorophenol	17	U	17.	ug/kg	103		84-109		
2,4,6-Trichlorophenol	17	U	17.	ug/kg	101		88-114		
Batch number: 11349WAB026	Sample number(s): 6497513								
Acenaphthene	0.1	U	0.1	ug/l	102	98	75-114	3	30
Acenaphthylene	0.1	U	0.1	ug/l	113	111	80-122	2	30
Anthracene	0.1	U	0.1	ug/l	111	106	76-115	4	30
Benzo(a)anthracene	0.1	U	0.1	ug/l	104	101	75-116	3	30
Benzo(a)pyrene	0.1	U	0.1	ug/l	110	107	64-126	3	30
Benzo(b)fluoranthene	0.1	U	0.1	ug/l	103	103	66-125	0	30
Benzo(g,h,i)perylene	0.1	U	0.1	ug/l	109	104	66-132	5	30
Benzo(k)fluoranthene	0.1	U	0.1	ug/l	108	106	66-131	2	30
Benzyl alcohol	5	U	5.	ug/l	80	81	66-97	1	30
1,1'-Biphenyl	0.5	U	0.5	ug/l	102	97	80-109	5	30
4-Bromophenyl-phenylether	0.5	U	0.5	ug/l	101	99	75-115	2	30
Butylbenzylphthalate	2	U	2.	ug/l	106	99	77-115	7	30
Di-n-butylphthalate	2	U	2.	ug/l	109	106	76-115	4	30

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280700
Reported: 12/23/11 at 06:49 PM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Carbazole	0.5	U	0.5	ug/l	107	103	75-120	4	30
4-Chloro-3-methylphenol	0.5	U	0.5	ug/l	98	96	70-123	2	30
4-Chloroaniline	0.5	U	0.5	ug/l	75	78	24-128	3	30
bis(2-Chloroethoxy)methane	0.5	U	0.5	ug/l	102	100	74-124	1	30
bis(2-Chloroethyl)ether	0.5	U	0.5	ug/l	98	97	77-108	1	30
2-Chloronaphthalene	0.4	U	0.4	ug/l	81	76	54-132	6	30
2-Chlorophenol	0.5	U	0.5	ug/l	89	89	71-114	1	30
4-Chlorophenyl-phenylether	0.5	U	0.5	ug/l	104	98	77-114	6	30
Chrysene	0.1	U	0.1	ug/l	103	95	76-116	8	30
Dibenz(a,h)anthracene	0.1	U	0.1	ug/l	110	105	67-131	5	30
Dibenzofuran	0.5	U	0.5	ug/l	100	98	75-117	3	30
3,3'-Dichlorobenzidine	2	U	2.	ug/l	66	65	37-117	1	30
2,4-Dichlorophenol	0.5	U	0.5	ug/l	100	101	77-117	0	30
Diethylphthalate	2	U	2.	ug/l	103	97	66-116	6	30
2,4-Dimethylphenol	0.5	U	0.5	ug/l	100	98	72-110	2	30
Dimethylphthalate	2	U	2.	ug/l	83	80	39-126	4	30
4,6-Dinitro-2-methylphenol	5	U	5.	ug/l	110	108	65-126	1	30
2,4-Dinitrophenol	10	U	10.	ug/l	97	89	52-131	9	30
2,4-Dinitrotoluene	1	U	1.	ug/l	104	99	76-119	4	30
2,6-Dinitrotoluene	0.5	U	0.5	ug/l	108	104	76-118	4	30
1,4-Dioxane	1	U	1.	ug/l	51	48	32-78	5	30
bis(2-Ethylhexyl)phthalate	2	U	2.	ug/l	104	97	78-117	6	30
Fluoranthene	0.1	U	0.1	ug/l	111	108	76-119	3	30
Fluorene	0.1	U	0.1	ug/l	107	102	76-116	5	30
Hexachlorobenzene	0.1	U	0.1	ug/l	109	103	75-119	6	30
Hexachlorocyclopentadiene	5	U	5.	ug/l	84	81	36-118	3	30
Hexachloroethane	1	U	1.	ug/l	80	84	52-113	5	30
Indeno(1,2,3-cd)pyrene	0.1	U	0.1	ug/l	105	101	69-121	4	30
Isophorone	0.5	U	0.5	ug/l	105	103	74-117	2	30
2-Methylnaphthalene	0.1	U	0.1	ug/l	99	96	69-108	2	30
2-Methylphenol	0.5	U	0.5	ug/l	82	84	58-110	3	30
4-Methylphenol	0.5	U	0.5	ug/l	70	73	49-108	4	30
2-Nitroaniline	0.5	U	0.5	ug/l	104	102	75-120	2	30
3-Nitroaniline	0.5	U	0.5	ug/l	101	96	74-113	5	30
4-Nitroaniline	0.5	U	0.5	ug/l	79	73	59-100	8	30
Nitrobenzene	0.5	U	0.5	ug/l	103	101	75-109	2	30
2-Nitrophenol	0.5	U	0.5	ug/l	100	100	76-118	1	30
4-Nitrophenol	10	U	10.	ug/l	35	35	16-78	1	30
N-Nitroso-di-n-propylamine	0.5	U	0.5	ug/l	94	95	69-110	1	30
N-Nitrosodiphenylamine	0.5	U	0.5	ug/l	107	104	67-136	3	30
Di-n-octylphthalate	2	U	2.	ug/l	107	103	68-128	5	30
Pentachlorophenol	1	U	1.	ug/l	107	107	53-110	0	30
Phenanthrene	0.1	U	0.1	ug/l	107	105	76-113	2	30
Phenol	0.5	U	0.5	ug/l	39	42	21-67	8	30
Pyrene	0.1	U	0.1	ug/l	107	100	75-119	7	30
2,4,5-Trichlorophenol	0.5	U	0.5	ug/l	107	103	79-107	4	30
2,4,6-Trichlorophenol	0.5	U	0.5	ug/l	107	103	76-120	4	30
Batch number: 113481026002A	Sample number(s): 6497514-6497533								
Arsenic	0.0777	U	0.0777	mg/kg	96		83-111		
Batch number: 113485705002	Sample number(s): 6497513								
Barium	0.00026	U	0.00026	mg/l	101		90-110		
Cadmium	0.00027	U	0.00027	mg/l	103		90-112		
Chromium	0.0011	U	0.0011	mg/l	102		90-110		
Lead	0.0022	U	0.0022	mg/l	107		88-110		
Selenium	0.0069	U	0.0069	mg/l	103		80-120		
Silver	0.00091	U	0.00091	mg/l	91		83-120		

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280700
Reported: 12/23/11 at 06:49 PM

Analysis Name	Blank Result	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 113485708002	Sample number(s): 6497514-6497533							
Barium	0.0176 U	0.0176	mg/kg	94		89-112		
Cadmium	0.0196 U	0.0196	mg/kg	93		88-117		
Chromium	0.137 U	0.137	mg/kg	94		80-111		
Lead	0.216 U	0.216	mg/kg	94		90-115		
Selenium	0.926 J	0.667	mg/kg	93		83-111		
Silver	0.0814 U	0.0814	mg/kg	92		86-112		
Batch number: 113485711003	Sample number(s): 6497514-6497533							
Mercury	0.0066 U	0.0066	mg/kg	97		83-119		
Batch number: 113486050002A	Sample number(s): 6497513							
Arsenic	0.00095 U	0.00095	mg/l	100		86-111		
Batch number: 113495713003	Sample number(s): 6497513							
Mercury	0.000026 U	0.00002 6	mg/l	93		80-120		
Batch number: 11349820005A	Sample number(s): 6497514-6497533							
Moisture				100		99-101		
Moisture				100		99-101		
Moisture Duplicate				100		99-101		

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: X113541AA	Sample number(s): 6497514-6497516,6497518-6497519 UNSPK: 6497514								
Acetone	350*	311*	31-195	7	30				
Benzene	128	136	55-143	9	30				
Bromobenzene	78	92	43-139	19	30				
Bromochloromethane	28*	31*	60-137	13	30				
Bromodichloromethane	105	114	53-136	11	30				
Bromoform	7*	9*	38-124	31*	30				
Bromomethane	73	76	42-168	7	30				
2-Butanone	241*	240*	37-163	2	30				
n-Butylbenzene	638*	704*	30-146	13	30				
sec-Butylbenzene	615*	598*	33-157	0	30				
tert-Butylbenzene	199*	225*	41-152	15	30				
Carbon Disulfide	154*	149*	48-146	1	30				
Carbon Tetrachloride	45	51	45-153	15	30				
Chlorobenzene	104	116	49-135	14	30				
Chloroethane	115	129	39-152	14	30				
Chloroform	111	123	61-142	13	30				
Chloromethane	181*	184*	51-163	4	30				
2-Chlorotoluene	281*	321*	42-146	16	30				
4-Chlorotoluene	253*	293*	39-145	17	30				
Cyclohexane	183*	195*	57-151	9	30				
1,2-Dibromo-3-chloropropane	874*	1135*	30-139	29	30				
Dibromochloromethane	53	62	51-128	19	30				

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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280700
Reported: 12/23/11 at 06:49 PM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
1,2-Dibromoethane	118	149*	54-129	26	30				
Dibromomethane	88	100	57-130	15	30				
1,2-Dichlorobenzene	100	130	36-133	29	30				
1,3-Dichlorobenzene	111	139*	34-134	25	30				
1,4-Dichlorobenzene	116	143*	35-136	24	30				
Dichlorodifluoromethane	109	109	26-151	3	30				
1,1-Dichloroethane	159*	170*	63-142	9	30				
1,2-Dichloroethane	163*	174*	68-131	9	30				
1,1-Dichloroethene	92	104	61-149	15	30				
cis-1,2-Dichloroethene	100	100	60-136	2	30				
trans-1,2-Dichloroethene	89	98	59-142	12	30				
1,2-Dichloropropane	155*	168*	62-135	11	30				
1,3-Dichloropropane	240*	267*	58-129	14	30				
2,2-Dichloropropane	122	134	53-147	12	30				
1,1-Dichloropropene	135	147*	54-145	12	30				
cis-1,3-Dichloropropene	118	134*	51-131	16	30				
trans-1,3-Dichloropropene	205*	237*	49-129	17	30				
Ethylbenzene	187*	200*	44-141	10	30				
Freon 113	89	94	56-156	8	30				
Hexachlorobutadiene	0*	0*	10-155	0	30				
2-Hexanone	381*	464*	32-160	23	30				
Isopropylbenzene	192*	147*	38-144	24	30				
p-Isopropyltoluene	331*	370*	29-152	14	30				
Methyl Acetate	256*	272*	48-161	9	30				
Methyl Tertiary Butyl Ether	133*	142*	55-129	9	30				
4-Methyl-2-pentanone	209*	229*	46-139	12	30				
Methylcyclohexane	105	121	39-168	16	30				
Methylene Chloride	112	123	61-141	13	30				
Naphthalene	151*	245*	10-138	50*	30				
n-Propylbenzene	800*	878*	39-157	12	30				
Styrene	119	126	35-134	9	30				
1,1,1,2-Tetrachloroethane	50*	58	52-130	18	30				
1,1,2,2-Tetrachloroethane	926*	1059*	40-152	16	30				
Tetrachloroethene	19*	12*	42-149	27	30				
Toluene	195*	201*	50-146	6	30				
1,2,3-Trichlorobenzene	12	18	10-140	41*	30				
1,2,4-Trichlorobenzene	12	18	10-136	43*	30				
1,1,1-Trichloroethane	90	102	64-142	15	30				
1,1,2-Trichloroethane	181*	184*	54-139	4	30				
Trichloroethene	151*	98	53-144	37*	30				
Trichlorofluoromethane	81	84	47-163	6	30				
1,2,3-Trichloropropane	496*	592*	45-154	20	30				
1,2,4-Trimethylbenzene	510*	581*	37-149	16	30				
1,3,5-Trimethylbenzene	527*	597*	38-150	15	30				
Vinyl Acetate	193*	200*	21-139	5	30				
Vinyl Chloride	167*	167*	50-154	2	30				
m+p-Xylene	125	137	44-137	12	30				
o-Xylene	129	140*	42-137	11	30				
Batch number: 11348SLC026	Sample number(s): 6497514-6497516,6497518-6497533 UNSPK: 6497514								
Acenaphthene	88	87	41-135	1	30				
Acenaphthylene	98	97	47-137	1	30				
Anthracene	92	90	40-147	2	30				

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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280700
Reported: 12/23/11 at 06:49 PM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Benzo(a)anthracene	93	91	32-150	2	30				
Benzo(a)pyrene	91	89	57-129	2	30				
Benzo(b)fluoranthene	91	88	53-131	3	30				
Benzo(g,h,i)perylene	91	91	60-123	1	30				
Benzo(k)fluoranthene	84	83	61-131	0	30				
Benzyl alcohol	86	84	63-128	3	30				
1,1'-Biphenyl	88	88	51-127	0	30				
4-Bromophenyl-phenylether	94	93	46-131	2	30				
Butylbenzylphthalate	91	90	26-161	1	30				
Di-n-butylphthalate	91	92	32-139	0	30				
Carbazole	88	89	36-148	1	30				
4-Chloro-3-methylphenol	81	81	33-144	1	30				
4-Chloroaniline	75	73	11-114	3	30				
bis(2-Chloroethoxy)methane	82	83	44-132	1	30				
bis(2-Chloroethyl)ether	81	80	45-139	1	30				
2-Chloronaphthalene	97	97	22-131	0	30				
2-Chlorophenol	89	87	29-151	2	30				
4-Chlorophenyl-phenylether	90	89	42-130	1	30				
Chrysene	90	88	76-114	1	30				
Dibenz(a,h)anthracene	94	94	37-151	1	30				
Dibenzofuran	86	84	38-148	2	30				
3,3'-Dichlorobenzidine	88	87	10-143	1	30				
2,4-Dichlorophenol	91	89	35-142	2	30				
Diethylphthalate	89	86	32-137	3	30				
2,4-Dimethylphenol	85	85	27-143	1	30				
Dimethylphthalate	91	90	26-141	1	30				
4,6-Dinitro-2-methylphenol	39	30	10-148	27	30				
2,4-Dinitrophenol	28	22	20-143	24	30				
2,4-Dinitrotoluene	90	88	27-147	2	30				
2,6-Dinitrotoluene	95	94	44-140	1	30				
1,4-Dioxane	45	47	31-77	3	30				
bis(2-Ethylhexyl)phthalate	92	93	38-151	1	30				
Fluoranthene	93	91	48-122	1	30				
Fluorene	87	85	35-140	2	30				
Hexachlorobenzene	90	90	53-137	1	30				
Hexachlorocyclopentadiene	28	14	10-153	67*	30				
Hexachloroethane	80	78	71-104	3	30				
Indeno(1,2,3-cd)pyrene	94	93	61-123	1	30				
Isophorone	81	81	54-122	0	30				
2-Methylnaphthalene	86	85	23-141	1	30				
2-Methylphenol	84	83	30-145	0	30				
4-Methylphenol	82	80	36-149	2	30				
2-Nitroaniline	100	100	46-146	1	30				
3-Nitroaniline	92	92	34-134	0	30				
4-Nitroaniline	78	76	26-124	3	30				
Nitrobenzene	85	87	37-139	2	30				
2-Nitrophenol	90	91	25-151	1	30				
4-Nitrophenol	73	71	15-149	2	30				
N-Nitroso-di-n-propylamine	74	72	46-128	3	30				
N-Nitrosodiphenylamine	96	97	33-148	0	30				
Di-n-octylphthalate	91	92	43-149	1	30				
Pentachlorophenol	76	75	23-145	1	30				
Phenanthrene	87	86	34-147	1	30				

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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280700
Reported: 12/23/11 at 06:49 PM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Phenol	76	76	39-151	0	30				
Pyrene	86	85	76-124	1	30				
2,4,5-Trichlorophenol	95	94	25-143	1	30				
2,4,6-Trichlorophenol	96	96	41-142	0	30				
Batch number: 113481026002A	Sample number(s): 6497514-6497533 UNSPK: 6497514 BKG: 6497514								
Arsenic	115 (2)	1 (2)	75-125	21*	20	9.80	11.4	15	20
Batch number: 113485705002	Sample number(s): 6497513 UNSPK: P499186 BKG: P499186								
Barium	127*	135*	78-118	3	20	3.49	3.52	1	20
Cadmium	100	101	83-116	1	20	0.00027 U	0.00027 U	0 (1)	20
Chromium	102	103	81-120	1	20	0.0011 U	0.0011 U	0 (1)	20
Lead	97	98	75-125	1	20	0.0033 J	0.0030 J	11 (1)	20
Selenium	108	109	75-125	1	20	0.0069 U	0.0069 U	0 (1)	20
Silver	96	96	75-125	0	20	0.00091 U	0.00091 U	0 (1)	20
Batch number: 113485708002	Sample number(s): 6497514-6497533 UNSPK: 6497514 BKG: 6497514								
Barium	134*	161*	75-125	14	20	110	116	6	20
Cadmium	90	108	75-125	15	20	0.862	0.972	12 (1)	20
Chromium	85	89	75-125	2	20	19.9	20.4	3	20
Lead	74*	137*	75-125	31*	20	14.9	17.6	17	20
Selenium	108	118	75-125	9	20	0.654 U	0.741 J	200* (1)	20
Silver	99	97	75-125	1	20	0.0798 U	0.0814 U	0 (1)	20
Batch number: 113485711003	Sample number(s): 6497514-6497533 UNSPK: 6497514 BKG: 6497514								
Mercury	105	101	80-120	3	20	0.0112 J	0.0164 J	37* (1)	20
Batch number: 113486050002A	Sample number(s): 6497513 UNSPK: P497550 BKG: P497550								
Arsenic	99	93	75-125	6	20	0.00095 U	0.00095 U	0 (1)	20
Batch number: 113495713003	Sample number(s): 6497513 UNSPK: P500144 BKG: P500144								
Mercury	90	87	80-120	3	20	0.000026 U	0.000026 U	0 (1)	20
Batch number: 11349820005A	Sample number(s): 6497514-6497533 BKG: 6497514								
Moisture						13.9	14.7	6	15
Moisture						13.9	14.7	6	15
Moisture Duplicate						13.9	14.7	6	15

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 8260 Ext. Soil Master
Batch number: A113551AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
6497520	104	104	99	94
6497521	105	106	103	88
6497522	104	103	99	92

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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280700
Reported: 12/23/11 at 06:49 PM

Surrogate Quality Control

6497523	105	100	100	93
6497524	105	105	99	92
6497525	106	104	98	93
6497526	105	102	99	92
6497527	104	99	101	92
6497528	107	104	100	91
6497529	105	101	99	91
6497530	107	104	97	93
6497531	105	103	98	93
6497532	106	103	96	91
6497533	105	102	99	91
Blank	103	101	100	94
LCS	104	102	102	97
LCSD	104	99	102	96
Limits:	71-114	70-109	70-123	70-111

Analysis Name: 8260 Ext. Soil Master
Batch number: X113541AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
6497514	61*	75	153*	167*
6497515	60*	80	160*	169*
6497516	60*	78	165*	163*
6497518	100	100	102	99
6497519	101	107	94	97
Blank	102	104	93	97
LCS	100	105	108	95
MS	60*	80	160*	169*
MSD	60*	78	165*	163*
Limits:	71-114	70-109	70-123	70-111

Analysis Name: TCL 8270 (microwave)
Batch number: 11348SLC026

	Phenol-d6	2-Fluorophenol	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
6497514	78	84	77	80	87	70
6497515	79	84	80	80	86	67
6497516	79	85	79	81	86	82
6497518	84	88	91	79	79	85
6497519	85	91	95	81	82	75
6497520	88	92	96	84	83	75
6497521	86	90	85	81	82	71
6497522	87	90	86	80	82	113
6497523	85	87	84	78	82	70
6497524	84	88	84	79	83	74
6497525	84	88	85	80	84	72
6497526	78	83	79	75	78	85
6497527	82	85	81	76	82	72
6497528	85	90	82	82	86	73
6497529	99	103	100	95	104	89
6497530	79	82	83	77	82	76
6497531	78	83	82	75	81	74
6497532	77	79	80	73	81	73
6497533	72	75	53	74	79	65
6497533 DL	73	75	60	72	77	69

*- Outside of specification
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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280700
Reported: 12/23/11 at 06:49 PM

Surrogate Quality Control

Blank	86	92	98	86	87	97
LCS	93	97	96	86	86	94
MS	79	84	80	80	86	67
MSD	79	85	79	81	86	82
Limits:	42-130	39-136	28-139	45-123	56-121	43-124

Analysis Name: TCL SW846 Semivolatiles/Waters
Batch number: 11349WAB026

	2-Fluorophenol	Phenol-d6	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
6497513	52	30	100	94	96	108
Blank	46	28	96	95	95	108
LCS	56	34	103	97	99	109
LCSD	59	36	102	95	96	105
Limits:	10-98	10-74	22-150	52-120	63-114	34-118

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Analysis Request/ Environmental Services Chain of Custody

Page 1 of 3

Lancaster Laboratories

For Lancaster Laboratories use only

Acct. # 11372 Group# 1280700 Sample # 6497513-33

COC # 273997

Please print. Instructions on reverse side correspond with circled numbers.

(1) Client: DOW Hanging Rock Acct. #:

Project Name/#: 420671-01-FI PWSID #:

Project Manager: Mark Holland P.O.#: 420671-04

Sampler: Osagwona Ogbebor Quote #:

Name of state where samples were collected: Ohio

For Lab Use Only
FSC:
SCR#:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

(6) Temperature of samples upon receipt (if requested)

Remarks

(2) Sample Identification	Date Collected	Time Collected	(3) Grab	Composite	Matrix: Soil	Water (Potable / NPDES)	Other	(4) Total # of Containers	(5) Analyses Requested / Preservation Codes: VOCs	SVOCs	Metals	Moisture Content
HGR-121211-EB01	12/12/11	1740	X			X		3	✓	✓	✓	
SØ1-SSØ3-ØØØ2-121211	12/12/11	0955		X	X			4	✓	✓	✓	✓
SØ1-SSØ3-ØØØ2-121211 MS	12/12/11	0955		X	X			4	✓	✓	✓	✓
SØ1-SSØ3-ØØØ2-121211 MSD	12/12/11	0955		X	X			4	✓	✓	✓	✓
SØ1-SSØ3-Ø3Ø5-121211	12/12/11	1000		X	X			4	✓	✓	✓	✓
SØ1-SSØ3-Ø8ØØ-121211	12/12/11	1005		X	X			4	✓	✓	✓	✓
SØ1-SSØ3-1315-121211	12/12/11	1010		X	X			4	✓	✓	✓	✓
SØ1-SSØ4-ØØØ2-121211	12/12/11	1055		X	X			4	✓	✓	✓	✓
SØ1-SSØ4-Ø3Ø5-121211	12/12/11	1100		X	X			4	✓	✓	✓	✓
SØ1-SSØ4-Ø8ØØ-121211	12/12/11	1105		X	X			4	✓	✓	✓	✓

(7) **Turnaround Time Requested** (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed: NA
Rush results requested by (please circle): Phone Fax E-mail
Phone #: Fax #:
E-mail address:

(8) **Data Package Options** (please circle if required)
Type I (validation/NJ Reg)
Type II (Tier II)
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)
TX TRRP-13
MA MCP CT RCP
SDG Complete? Yes No
Site-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate volume.)
Internal COC Required? Yes / No

(9)

Relinquished by:	Date	Time	Received by:	Date	Time
Osagwona	12/12/11	1930			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	12/13/11	0935

Analysis Request/ Environmental Services Chain of Custody

Page 2 of 3

Lancaster Laboratories

For Lancaster Laboratories use only

Acct. # 11372 Group# 280700 Sample # 6497513-33

COC # 274005

Please print. Instructions on reverse side correspond with circled numbers.

(1) Client: Dow Hanging Rock Acct. #:

Project Name/#: 420671-01-FI PWSID #:

Project Manager: Marie Holland P.O.#: 420671-04

Sampler: Osagnona Ogbebor Quote #:

Name of state where samples were collected: Ohio

For Lab Use Only
FSC:
SCR#:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

(6) Temperature of samples upon receipt (if requested)

(2) Sample Identification	Date Collected	Time Collected	(3) Grab	(3) Composite	Matrix (4) Soil	Matrix (4) Water (Potable / NPDES)	Matrix (4) Other	Total # of Containers	(5) Analyses Requested / Preservation Codes: VOCs	SVOCs	Metals	Moisture Content	Remarks
HGR-121211-FD01	12/12/11	—		X	X			4	✓	✓	✓	✓	
SD1-SS05-0002-121211	12/12/11	1205		X	X			4	✓	✓	✓	✓	
SD1-SS05-0305-121211	12/12/11	1210		X	X			4	✓	✓	✓	✓	
SD1-SS05-0810-121211	12/12/11	1215		X	X			4	✓	✓	✓	✓	
SD1-SS05-2123-121211	12/12/11	1320		X	X			4	✓	✓	✓	✓	
SD1-SS06-0002-121211	12/12/11	1510		X	X			4	✓	✓	✓	✓	
SD1-SS06-0305-121211	12/12/11	1515		X	X			4	✓	✓	✓	✓	
SD1-SS06-0810-121211	12/12/11	1520		X	X			4	✓	✓	✓	✓	
SD1-SS06-1315-121211	12/12/11	1525		X	X			4	✓	✓	✓	✓	
SD1-SS09-0002-121211	12/12/11	1545		X	X			4	✓	✓	✓	✓	

(7) **Turnaround Time Requested** (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed:
Rush results requested by (please circle): Phone Fax E-mail
Phone #: Fax #:
E-mail address:

(8) **Data Package Options** (please circle if required)
Type I (validation/NJ Reg)
Type II (Tier II)
Type III (Reduced NJ)
~~Type IV (CLP SOW)~~
Type VI (Raw Data Only)
TX TRRP-13
MA MCP CT RCP
SDG Complete? Yes No
Site-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate volume.)
Internal COC Required? Yes / No

(9)

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	12/12/11	1930			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by: [signature]	12/13/11	0935

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
ug	microgram(s)	**mg**	milligram(s)
ml	milliliter(s)	**l**	liter(s)
m3	cubic meter(s)	**ul**	microliter(s)

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

J estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike sample not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*****	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

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Analysis Report

ANALYTICAL RESULTS

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425

Prepared for:

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

December 30, 2011

Project: Dow Hanging Rock, OH

Submittal Date: 12/13/2011
Group Number: 1280701
SDG: DHR07
PO Number: 420671-04
Release Number: DHR06
State of Sample Origin: OH

Client Sample Description	Lancaster Labs (LLI) #
S01-SS09-0305-121211 Composite Soil Sample	6497534
S01-SS09-0810-121211 Composite Soil Sample	6497535
S01-SS08-0002-121211 Composite Soil Sample	6497536
S01-SS08-0305-121211 Composite Soil Sample	6497537
S01-SS08-0810-121211 Composite Soil Sample	6497538
S01-SS08-2123-121211 Composite Soil Sample	6497539
S01-SS07-0002-121211 Composite Soil Sample	6497540
S01-SS07-0305-121211 Composite Soil Sample	6497541
S01-SS07-0810-121211 Composite Soil Sample	6497542
121211TB Water Sample	6497543

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Shane Lowe
ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Rachel Grand
1 COPY TO	Data Package Group	

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Questions? Contact your Client Services Representative
Wendy A Kozma at (717) 656-2300 Ext. 1522

Respectfully Submitted,

Lawrence M. Taylor
Senior Specialist

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Analysis Report

Sample Description: S01-SS09-0305-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497534
LLI Group # 1280701
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 15:50 by OO

Submitted: 12/13/2011 09:35
Reported: 12/30/2011 15:36

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

09305 SDG#: DHR07-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	28		7	0.81
10949	Benzene	71-43-2	0.5	U	0.5	0.81
10949	Bromobenzene	108-86-1	1	U	1	0.81
10949	Bromochloromethane	74-97-5	1	U	1	0.81
10949	Bromodichloromethane	75-27-4	1	U	1	0.81
10949	Bromoform	75-25-2	1	U	1	0.81
10949	Bromomethane	74-83-9	2	U	2	0.81
10949	2-Butanone	78-93-3	4	U	4	0.81
10949	n-Butylbenzene	104-51-8	1	U	1	0.81
10949	sec-Butylbenzene	135-98-8	1	U	1	0.81
10949	tert-Butylbenzene	98-06-6	1	U	1	0.81
10949	Carbon Disulfide	75-15-0	1	U	1	0.81
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.81
10949	Chlorobenzene	108-90-7	1	U	1	0.81
10949	Chloroethane	75-00-3	2	U	2	0.81
10949	Chloroform	67-66-3	1	U	1	0.81
10949	Chloromethane	74-87-3	2	U	2	0.81
10949	2-Chlorotoluene	95-49-8	1	U	1	0.81
10949	4-Chlorotoluene	106-43-4	1	U	1	0.81
10949	Cyclohexane	110-82-7	1	U	1	0.81
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.81
10949	Dibromochloromethane	124-48-1	1	U	1	0.81
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.81
10949	Dibromomethane	74-95-3	1	U	1	0.81
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.81
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.81
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.81
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.81
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.81
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.81
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.81
10949	cis-1,2-Dichloroethene	156-59-2	3	J	1	0.81
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.81
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.81
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.81
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.81
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.81
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.81
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.81
10949	Ethylbenzene	100-41-4	1	U	1	0.81
10949	Freon 113	76-13-1	2	U	2	0.81
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.81
10949	2-Hexanone	591-78-6	3	U	3	0.81
10949	Isopropylbenzene	98-82-8	1	U	1	0.81
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.81
10949	Methyl Acetate	79-20-9	2	U	2	0.81
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.81
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.81
10949	Methylcyclohexane	108-87-2	1	U	1	0.81
10949	Methylene Chloride	75-09-2	2	U	2	0.81
10949	Naphthalene	91-20-3	1	U	1	0.81

Sample Description: S01-SS09-0305-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497534
LLI Group # 1280701
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 15:50 by OO

Submitted: 12/13/2011 09:35
Reported: 12/30/2011 15:36

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

09305 SDG#: DHR07-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.81
10949	Styrene	100-42-5	1	U	1	0.81
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.81
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.81
10949	Tetrachloroethene	127-18-4	33		1	0.81
10949	Toluene	108-88-3	1	U	1	0.81
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.81
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.81
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.81
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.81
10949	Trichloroethene	79-01-6	4	J	1	0.81
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.81
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.81
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.81
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.81
10949	Vinyl Acetate	108-05-4	2	U	2	0.81
10949	Vinyl Chloride	75-01-4	1	U	1	0.81
10949	m+p-Xylene	179601-23-1	1	U	1	0.81
10949	o-Xylene	95-47-6	1	U	1	0.81

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: carbon disulfide; 1,2-dichloropropane and cis-1,3-dichloropropene.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	20	U	20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	81	U	81	1
10727	Di-n-butylphthalate	84-74-2	81	U	81	1
10727	Carbazole	86-74-8	20	U	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	20	U	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1

Sample Description: S01-SS09-0305-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497534
LLI Group # 1280701
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 15:50 by OO

Submitted: 12/13/2011 09:35
Reported: 12/30/2011 15:36

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

09305 SDG#: DHR07-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1
10727	Diethylphthalate	84-66-2	81	U	81	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	81	U	81	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1
10727	2,4-Dinitrophenol	51-28-5	410	U	410	1
10727	2,4-Dinitrotoluene	121-14-2	81	U	81	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	81	U	81	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	41	U	41	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	81	U	81	1
10727	4-Nitroaniline	100-01-6	81	U	81	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	81	U	81	1
10727	Pentachlorophenol	87-86-5	41	U	41	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	20	U	20	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
	The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 1,1'-biphenyl dibenzofuran phenanthrene					
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	98.6		0.0220	1

Sample Description: S01-SS09-0305-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497534
LLI Group # 1280701
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 15:50 by OO

Submitted: 12/13/2011 09:35
Reported: 12/30/2011 15:36

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

09305 SDG#: DHR07-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
Metals		**SW-846 6010B**	**mg/kg**		**mg/kg**	
06949	Cadmium	7440-43-9	1.04		0.0244	1
06951	Chromium	7440-47-3	21.6		0.171	1
06955	Lead	7439-92-1	17.1		0.269	1
06936	Selenium	7782-49-2	0.831	U	0.831	1
06966	Silver	7440-22-4	0.101	U	0.101	1
		SW-846 6020	**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	17.3		0.0940	2
		SW-846 7471A	**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0173	J	0.0081	1
Wet Chemistry		**SM20 2540 G**	**%**		**%**	
00111	Moisture	n.a.	18.2		0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113551AA	12/21/2011 21:53	Chelsea B Eastep	0.81
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134726425	12/13/2011 13:40	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134726425	12/13/2011 13:40	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134726425	12/13/2011 13:39	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11348SLB026	12/17/2011 10:22	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11348SLB026	12/14/2011 18:30	Sally L Appleyard	1
06946	Barium	SW-846 6010B	1	113485708002	12/19/2011 06:36	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	113485708002	12/19/2011 06:36	Tara L Snyder	1
06951	Chromium	SW-846 6010B	1	113485708002	12/19/2011 06:36	Tara L Snyder	1
06955	Lead	SW-846 6010B	1	113485708002	12/19/2011 06:36	Tara L Snyder	1
06936	Selenium	SW-846 6010B	1	113485708002	12/19/2011 06:36	Tara L Snyder	1
06966	Silver	SW-846 6010B	1	113485708002	12/19/2011 06:36	Tara L Snyder	1
06125	Arsenic	SW-846 6020	1	113481026002A	12/21/2011 10:26	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113485711003	12/16/2011 07:30	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113485708002	12/15/2011 10:28	James L Mertz	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113481026002	12/15/2011 11:07	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113485711003	12/15/2011 11:55	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11350820006A	12/16/2011 19:38	Scott W Freisher	1

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Analysis Report

Sample Description: S01-SS09-0810-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497535
LLI Group # 1280701
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 15:55 by OO

Submitted: 12/13/2011 09:35
Reported: 12/30/2011 15:36

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

09810 SDG#: DHR07-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	14	J	7	0.84
10949	Benzene	71-43-2	0.5	U	0.5	0.84
10949	Bromobenzene	108-86-1	1	U	1	0.84
10949	Bromochloromethane	74-97-5	1	U	1	0.84
10949	Bromodichloromethane	75-27-4	1	U	1	0.84
10949	Bromoform	75-25-2	1	U	1	0.84
10949	Bromomethane	74-83-9	2	U	2	0.84
10949	2-Butanone	78-93-3	4	U	4	0.84
10949	n-Butylbenzene	104-51-8	1	U	1	0.84
10949	sec-Butylbenzene	135-98-8	1	U	1	0.84
10949	tert-Butylbenzene	98-06-6	1	U	1	0.84
10949	Carbon Disulfide	75-15-0	1	U	1	0.84
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.84
10949	Chlorobenzene	108-90-7	1	U	1	0.84
10949	Chloroethane	75-00-3	2	U	2	0.84
10949	Chloroform	67-66-3	1	U	1	0.84
10949	Chloromethane	74-87-3	2	U	2	0.84
10949	2-Chlorotoluene	95-49-8	1	U	1	0.84
10949	4-Chlorotoluene	106-43-4	1	U	1	0.84
10949	Cyclohexane	110-82-7	1	U	1	0.84
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.84
10949	Dibromochloromethane	124-48-1	1	U	1	0.84
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.84
10949	Dibromomethane	74-95-3	1	U	1	0.84
10949	1,2-Dichlorobenzene	95-50-1	1	J	1	0.84
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.84
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.84
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.84
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.84
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.84
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.84
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.84
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.84
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.84
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.84
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.84
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.84
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.84
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.84
10949	Ethylbenzene	100-41-4	1	U	1	0.84
10949	Freon 113	76-13-1	2	U	2	0.84
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.84
10949	2-Hexanone	591-78-6	3	U	3	0.84
10949	Isopropylbenzene	98-82-8	1	U	1	0.84
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.84
10949	Methyl Acetate	79-20-9	2	U	2	0.84
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.84
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.84
10949	Methylcyclohexane	108-87-2	1	U	1	0.84
10949	Methylene Chloride	75-09-2	2	U	2	0.84
10949	Naphthalene	91-20-3	1	U	1	0.84

Sample Description: S01-SS09-0810-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497535
LLI Group # 1280701
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 15:55 by OO

Submitted: 12/13/2011 09:35
Reported: 12/30/2011 15:36

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

09810 SDG#: DHR07-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.84
10949	Styrene	100-42-5	1	U	1	0.84
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.84
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.84
10949	Tetrachloroethene	127-18-4	21		1	0.84
10949	Toluene	108-88-3	1	U	1	0.84
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.84
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.84
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.84
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.84
10949	Trichloroethene	79-01-6	1	J	1	0.84
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.84
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.84
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.84
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.84
10949	Vinyl Acetate	108-05-4	2	U	2	0.84
10949	Vinyl Chloride	75-01-4	1	U	1	0.84
10949	m+p-Xylene	179601-23-1	1	U	1	0.84
10949	o-Xylene	95-47-6	1	U	1	0.84

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: carbon disulfide; 1,2-dichloropropane and cis-1,3-dichloropropene.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	20	U	20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	81	U	81	1
10727	Di-n-butylphthalate	84-74-2	81	U	81	1
10727	Carbazole	86-74-8	20	U	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	8	U	8	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	20	U	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1

Sample Description: S01-SS09-0810-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497535
LLI Group # 1280701
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 15:55 by OO

Submitted: 12/13/2011 09:35
Reported: 12/30/2011 15:36

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

09810 SDG#: DHR07-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1
10727	Diethylphthalate	84-66-2	81	U	81	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	81	U	81	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1
10727	2,4-Dinitrophenol	51-28-5	400	U	400	1
10727	2,4-Dinitrotoluene	121-14-2	81	U	81	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	81	U	81	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	40	U	40	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	81	U	81	1
10727	4-Nitroaniline	100-01-6	81	U	81	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	81	U	81	1
10727	Pentachlorophenol	87-86-5	40	U	40	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	20	U	20	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
	The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 1,1'-biphenyl dibenzofuran phenanthrene					
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	60.0		0.0218	1

Sample Description: S01-SS09-0810-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497535
LLI Group # 1280701
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 15:55 by OO

Submitted: 12/13/2011 09:35
Reported: 12/30/2011 15:36

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

09810 SDG#: DHR07-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
Metals		**SW-846 6010B**	**mg/kg**		**mg/kg**	
06949	Cadmium	7440-43-9	0.749		0.0242	1
06951	Chromium	7440-47-3	11.9		0.169	1
06955	Lead	7439-92-1	10.7		0.266	1
06936	Selenium	7782-49-2	0.823	U	0.823	1
06966	Silver	7440-22-4	0.100	U	0.100	1
		SW-846 6020	**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	13.1		0.0950	2
		SW-846 7471A	**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0174	J	0.0079	1
Wet Chemistry		**SM20 2540 G**	**%**		**%**	
00111	Moisture	n.a.	17.4		0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113551AA	12/21/2011 22:16	Chelsea B Eastep	0.84
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134726425	12/13/2011 13:42	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134726425	12/13/2011 13:42	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134726425	12/13/2011 13:41	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11348SLB026	12/17/2011 11:34	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11348SLB026	12/14/2011 18:30	Sally L Appleyard	1
06946	Barium	SW-846 6010B	1	113485708002	12/19/2011 06:39	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	113485708002	12/19/2011 06:39	Tara L Snyder	1
06951	Chromium	SW-846 6010B	1	113485708002	12/19/2011 06:39	Tara L Snyder	1
06955	Lead	SW-846 6010B	1	113485708002	12/19/2011 06:39	Tara L Snyder	1
06936	Selenium	SW-846 6010B	1	113485708002	12/20/2011 05:00	Tara L Snyder	1
06966	Silver	SW-846 6010B	1	113485708002	12/19/2011 06:39	Tara L Snyder	1
06125	Arsenic	SW-846 6020	1	113481026002A	12/21/2011 10:27	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113485711003	12/16/2011 07:32	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113485708002	12/15/2011 10:28	James L Mertz	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113481026002	12/15/2011 11:07	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113485711003	12/15/2011 11:55	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11350820006A	12/16/2011 19:38	Scott W Freisher	1

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Analysis Report

Sample Description: S01-SS08-0002-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497536
LLI Group # 1280701
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 16:15 by OO

Submitted: 12/13/2011 09:35
Reported: 12/30/2011 15:36

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

08002 SDG#: DHR07-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	68		6	0.83
10949	Benzene	71-43-2	0.5	U	0.5	0.83
10949	Bromobenzene	108-86-1	0.9	U	0.9	0.83
10949	Bromochloromethane	74-97-5	0.9	U	0.9	0.83
10949	Bromodichloromethane	75-27-4	0.9	U	0.9	0.83
10949	Bromoform	75-25-2	0.9	U	0.9	0.83
10949	Bromomethane	74-83-9	2	U	2	0.83
10949	2-Butanone	78-93-3	9		4	0.83
10949	n-Butylbenzene	104-51-8	0.9	U	0.9	0.83
10949	sec-Butylbenzene	135-98-8	0.9	U	0.9	0.83
10949	tert-Butylbenzene	98-06-6	0.9	U	0.9	0.83
10949	Carbon Disulfide	75-15-0	1	J	0.9	0.83
10949	Carbon Tetrachloride	56-23-5	0.9	U	0.9	0.83
10949	Chlorobenzene	108-90-7	0.9	U	0.9	0.83
10949	Chloroethane	75-00-3	2	U	2	0.83
10949	Chloroform	67-66-3	0.9	U	0.9	0.83
10949	Chloromethane	74-87-3	2	U	2	0.83
10949	2-Chlorotoluene	95-49-8	0.9	U	0.9	0.83
10949	4-Chlorotoluene	106-43-4	0.9	U	0.9	0.83
10949	Cyclohexane	110-82-7	0.9	U	0.9	0.83
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.83
10949	Dibromochloromethane	124-48-1	0.9	U	0.9	0.83
10949	1,2-Dibromoethane	106-93-4	0.9	U	0.9	0.83
10949	Dibromomethane	74-95-3	0.9	U	0.9	0.83
10949	1,2-Dichlorobenzene	95-50-1	0.9	U	0.9	0.83
10949	1,3-Dichlorobenzene	541-73-1	0.9	U	0.9	0.83
10949	1,4-Dichlorobenzene	106-46-7	0.9	U	0.9	0.83
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.83
10949	1,1-Dichloroethane	75-34-3	0.9	U	0.9	0.83
10949	1,2-Dichloroethane	107-06-2	0.9	U	0.9	0.83
10949	1,1-Dichloroethene	75-35-4	0.9	U	0.9	0.83
10949	cis-1,2-Dichloroethene	156-59-2	0.9	U	0.9	0.83
10949	trans-1,2-Dichloroethene	156-60-5	0.9	U	0.9	0.83
10949	1,2-Dichloropropane	78-87-5	0.9	U	0.9	0.83
10949	1,3-Dichloropropane	142-28-9	0.9	U	0.9	0.83
10949	2,2-Dichloropropane	594-20-7	0.9	U	0.9	0.83
10949	1,1-Dichloropropene	563-58-6	0.9	U	0.9	0.83
10949	cis-1,3-Dichloropropene	10061-01-5	0.9	U	0.9	0.83
10949	trans-1,3-Dichloropropene	10061-02-6	0.9	U	0.9	0.83
10949	Ethylbenzene	100-41-4	0.9	U	0.9	0.83
10949	Freon 113	76-13-1	2	U	2	0.83
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.83
10949	2-Hexanone	591-78-6	3	U	3	0.83
10949	Isopropylbenzene	98-82-8	0.9	U	0.9	0.83
10949	p-Isopropyltoluene	99-87-6	0.9	U	0.9	0.83
10949	Methyl Acetate	79-20-9	2	U	2	0.83
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.83
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.83
10949	Methylcyclohexane	108-87-2	0.9	U	0.9	0.83
10949	Methylene Chloride	75-09-2	2	U	2	0.83
10949	Naphthalene	91-20-3	0.9	U	0.9	0.83

Sample Description: S01-SS08-0002-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497536
LLI Group # 1280701
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 16:15 by OO

Submitted: 12/13/2011 09:35
Reported: 12/30/2011 15:36

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

08002 SDG#: DHR07-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	0.9	U	0.9	0.83
10949	Styrene	100-42-5	0.9	U	0.9	0.83
10949	1,1,1,2-Tetrachloroethane	630-20-6	0.9	U	0.9	0.83
10949	1,1,2,2-Tetrachloroethane	79-34-5	0.9	U	0.9	0.83
10949	Tetrachloroethene	127-18-4	4	J	0.9	0.83
10949	Toluene	108-88-3	0.9	U	0.9	0.83
10949	1,2,3-Trichlorobenzene	87-61-6	0.9	U	0.9	0.83
10949	1,2,4-Trichlorobenzene	120-82-1	0.9	U	0.9	0.83
10949	1,1,1-Trichloroethane	71-55-6	0.9	U	0.9	0.83
10949	1,1,2-Trichloroethane	79-00-5	0.9	U	0.9	0.83
10949	Trichloroethene	79-01-6	0.9	U	0.9	0.83
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.83
10949	1,2,3-Trichloropropane	96-18-4	0.9	U	0.9	0.83
10949	1,2,4-Trimethylbenzene	95-63-6	0.9	U	0.9	0.83
10949	1,3,5-Trimethylbenzene	108-67-8	0.9	U	0.9	0.83
10949	Vinyl Acetate	108-05-4	2	U	2	0.83
10949	Vinyl Chloride	75-01-4	0.9	U	0.9	0.83
10949	m+p-Xylene	179601-23-1	0.9	U	0.9	0.83
10949	o-Xylene	95-47-6	0.9	U	0.9	0.83
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	7	J	4	1
10727	Acenaphthylene	208-96-8	100		4	1
10727	Anthracene	120-12-7	80		4	1
10727	Benzo(a)anthracene	56-55-3	220		4	1
10727	Benzo(a)pyrene	50-32-8	310		4	1
10727	Benzo(b)fluoranthene	205-99-2	420		4	1
10727	Benzo(g,h,i)perylene	191-24-2	350		4	1
10727	Benzo(k)fluoranthene	207-08-9	210		4	1
10727	Benzyl alcohol	100-51-6	180	U	180	1
10727	1,1'-Biphenyl	92-52-4	18	U	18	1
10727	4-Bromophenyl-phenylether	101-55-3	18	U	18	1
10727	Butylbenzylphthalate	85-68-7	74	U	74	1
10727	Di-n-butylphthalate	84-74-2	74	U	74	1
10727	Carbazole	86-74-8	18	U	18	1
10727	4-Chloro-3-methylphenol	59-50-7	18	U	18	1
10727	4-Chloroaniline	106-47-8	18	U	18	1
10727	bis(2-Chloroethoxy)methane	111-91-1	18	U	18	1
10727	bis(2-Chloroethyl)ether	111-44-4	18	U	18	1
10727	2-Chloronaphthalene	91-58-7	8	U	8	1
10727	2-Chlorophenol	95-57-8	18	U	18	1
10727	4-Chlorophenyl-phenylether	7005-72-3	18	U	18	1
10727	Chrysene	218-01-9	220		4	1
10727	Dibenz(a,h)anthracene	53-70-3	84		4	1
10727	Dibenzofuran	132-64-9	18	U	18	1
10727	3,3'-Dichlorobenzidine	91-94-1	110	U	110	1
10727	2,4-Dichlorophenol	120-83-2	18	U	18	1
10727	Diethylphthalate	84-66-2	74	U	74	1
10727	2,4-Dimethylphenol	105-67-9	18	U	18	1
10727	Dimethylphthalate	131-11-3	74	U	74	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	180	U	180	1

Sample Description: S01-SS08-0002-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497536
LLI Group # 1280701
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 16:15 by OO

Submitted: 12/13/2011 09:35
Reported: 12/30/2011 15:36

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

08002 SDG#: DHR07-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	370	U	370	1
10727	2,4-Dinitrotoluene	121-14-2	74	U	74	1
10727	2,6-Dinitrotoluene	606-20-2	18	U	18	1
10727	1,4-Dioxane	123-91-1	110	U	110	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	74	U	74	1
10727	Fluoranthene	206-44-0	260		4	1
10727	Fluorene	86-73-7	15	J	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	180	U	180	1
10727	Hexachloroethane	67-72-1	37	U	37	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	270		4	1
10727	Isophorone	78-59-1	18	U	18	1
10727	2-Methylnaphthalene	91-57-6	6	J	4	1
10727	2-Methylphenol	95-48-7	18	U	18	1
10727	4-Methylphenol	106-44-5	18	U	18	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	18	U	18	1
10727	3-Nitroaniline	99-09-2	74	U	74	1
10727	4-Nitroaniline	100-01-6	74	U	74	1
10727	Nitrobenzene	98-95-3	18	U	18	1
10727	2-Nitrophenol	88-75-5	18	U	18	1
10727	4-Nitrophenol	100-02-7	180	U	180	1
10727	N-Nitroso-di-n-propylamine	621-64-7	18	U	18	1
10727	N-Nitrosodiphenylamine	86-30-6	18	U	18	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	74	U	74	1
10727	Pentachlorophenol	87-86-5	37	U	37	1
10727	Phenanthrene	85-01-8	82		4	1
10727	Phenol	108-95-2	18	U	18	1
10727	Pyrene	129-00-0	250		4	1
10727	2,4,5-Trichlorophenol	95-95-4	18	U	18	1
10727	2,4,6-Trichlorophenol	88-06-2	18	U	18	1
	The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 1,1'-biphenyl dibenzofuran phenanthrene					
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	611		0.0957	5
06949	Cadmium	7440-43-9	0.454	J	0.0213	1
06951	Chromium	7440-47-3	26.1		0.149	1
06955	Lead	7439-92-1	15.4		0.234	1
06936	Selenium	7782-49-2	5.35		0.723	1
06966	Silver	7440-22-4	0.0883	U	0.0883	1

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Analysis Report

Sample Description: S01-SS08-0002-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497536
LLI Group # 1280701
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 16:15 by OO

Submitted: 12/13/2011 09:35
Reported: 12/30/2011 15:36

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

08002 SDG#: DHR07-03

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 6020**		**mg/kg**	**mg/kg**	
06125	Arsenic	7440-38-2	6.64	0.0868	2
	SW-846 7471A		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0278 J	0.0074	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	9.6	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113561AA	12/22/2011 13:25	Chelsea B Eastep	0.83
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134726425	12/13/2011 13:44	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134726425	12/13/2011 13:44	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134726425	12/13/2011 13:43	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11348SLB026	12/17/2011 11:58	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11348SLB026	12/14/2011 18:30	Sally L Appleyard	1
06946	Barium	SW-846 6010B	1	113485708002	12/20/2011 05:13	Tara L Snyder	5
06949	Cadmium	SW-846 6010B	1	113485708002	12/19/2011 06:43	Tara L Snyder	1
06951	Chromium	SW-846 6010B	1	113485708002	12/19/2011 06:43	Tara L Snyder	1
06955	Lead	SW-846 6010B	1	113485708002	12/19/2011 06:43	Tara L Snyder	1
06936	Selenium	SW-846 6010B	1	113485708002	12/20/2011 05:04	Tara L Snyder	1
06966	Silver	SW-846 6010B	1	113485708002	12/19/2011 06:43	Tara L Snyder	1
06125	Arsenic	SW-846 6020	1	113481026002A	12/21/2011 10:29	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113485711003	12/16/2011 07:33	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113485708002	12/15/2011 10:28	James L Mertz	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113481026002	12/15/2011 11:07	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113485711003	12/15/2011 11:55	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11350820006A	12/16/2011 19:38	Scott W Freisher	1

Sample Description: S01-SS08-0305-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497537
LLI Group # 1280701
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 16:20 by OO

Submitted: 12/13/2011 09:35
Reported: 12/30/2011 15:36

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

08305 SDG#: DHR07-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	16	J	7	0.87
10949	Benzene	71-43-2	0.5	U	0.5	0.87
10949	Bromobenzene	108-86-1	1	U	1	0.87
10949	Bromochloromethane	74-97-5	1	U	1	0.87
10949	Bromodichloromethane	75-27-4	1	U	1	0.87
10949	Bromoform	75-25-2	6		1	0.87
10949	Bromomethane	74-83-9	2	U	2	0.87
10949	2-Butanone	78-93-3	4	U	4	0.87
10949	n-Butylbenzene	104-51-8	1	U	1	0.87
10949	sec-Butylbenzene	135-98-8	1	U	1	0.87
10949	tert-Butylbenzene	98-06-6	1	U	1	0.87
10949	Carbon Disulfide	75-15-0	1	U	1	0.87
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.87
10949	Chlorobenzene	108-90-7	1	U	1	0.87
10949	Chloroethane	75-00-3	2	U	2	0.87
10949	Chloroform	67-66-3	1	U	1	0.87
10949	Chloromethane	74-87-3	2	U	2	0.87
10949	2-Chlorotoluene	95-49-8	1	U	1	0.87
10949	4-Chlorotoluene	106-43-4	1	U	1	0.87
10949	Cyclohexane	110-82-7	1	U	1	0.87
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.87
10949	Dibromochloromethane	124-48-1	1	U	1	0.87
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.87
10949	Dibromomethane	74-95-3	1	U	1	0.87
10949	1,2-Dichlorobenzene	95-50-1	4	J	1	0.87
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.87
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.87
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.87
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.87
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.87
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.87
10949	cis-1,2-Dichloroethene	156-59-2	1	J	1	0.87
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.87
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.87
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.87
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.87
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.87
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.87
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.87
10949	Ethylbenzene	100-41-4	1	U	1	0.87
10949	Freon 113	76-13-1	2	U	2	0.87
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.87
10949	2-Hexanone	591-78-6	3	U	3	0.87
10949	Isopropylbenzene	98-82-8	1	U	1	0.87
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.87
10949	Methyl Acetate	79-20-9	2	U	2	0.87
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.87
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.87
10949	Methylcyclohexane	108-87-2	1	U	1	0.87
10949	Methylene Chloride	75-09-2	2	U	2	0.87
10949	Naphthalene	91-20-3	1	U	1	0.87

Sample Description: S01-SS08-0305-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497537
LLI Group # 1280701
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 16:20 by OO

Submitted: 12/13/2011 09:35
Reported: 12/30/2011 15:36

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

08305 SDG#: DHR07-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.87
10949	Styrene	100-42-5	1	U	1	0.87
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.87
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.87
10949	Tetrachloroethene	127-18-4	70		1	0.87
10949	Toluene	108-88-3	1	U	1	0.87
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.87
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.87
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.87
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.87
10949	Trichloroethene	79-01-6	2	J	1	0.87
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.87
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.87
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.87
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.87
10949	Vinyl Acetate	108-05-4	2	U	2	0.87
10949	Vinyl Chloride	75-01-4	1	U	1	0.87
10949	m+p-Xylene	179601-23-1	1	U	1	0.87
10949	o-Xylene	95-47-6	1	U	1	0.87

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: carbon disulfide; 1,2-dichloropropane and cis-1,3-dichloropropene.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	20	U	20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	82	U	82	1
10727	Di-n-butylphthalate	84-74-2	82	U	82	1
10727	Carbazole	86-74-8	20	U	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	20	U	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1

Sample Description: S01-SS08-0305-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497537
LLI Group # 1280701
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 16:20 by OO

Submitted: 12/13/2011 09:35
Reported: 12/30/2011 15:36

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

08305 SDG#: DHR07-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1
10727	Diethylphthalate	84-66-2	82	U	82	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	82	U	82	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1
10727	2,4-Dinitrophenol	51-28-5	410	U	410	1
10727	2,4-Dinitrotoluene	121-14-2	82	U	82	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	82	U	82	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	41	U	41	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	82	U	82	1
10727	4-Nitroaniline	100-01-6	82	U	82	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	82	U	82	1
10727	Pentachlorophenol	87-86-5	41	U	41	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	20	U	20	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
	The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 1,1'-biphenyl dibenzofuran phenanthrene					
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	105		0.0210	1

Sample Description: S01-SS08-0305-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497537
LLI Group # 1280701
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 16:20 by OO

Submitted: 12/13/2011 09:35
Reported: 12/30/2011 15:36

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

08305 SDG#: DHR07-04

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 6010B**		**mg/kg**	**mg/kg**	
06949	Cadmium	7440-43-9	0.137 J	0.0233	1
06951	Chromium	7440-47-3	22.1	0.163	1
06955	Lead	7439-92-1	18.3	0.257	1
06936	Selenium	7782-49-2	0.794 U	0.794	1
06966	Silver	7440-22-4	0.0969 U	0.0969	1
	SW-846 6020		**mg/kg**	**mg/kg**	
06125	Arsenic	7440-38-2	14.9	0.0971	2
	SW-846 7471A		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0229 J	0.0084	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	18.4	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113551AA	12/21/2011 23:01	Chelsea B Eastep	0.87
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134726425	12/13/2011 13:46	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134726425	12/13/2011 13:46	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134726425	12/13/2011 13:45	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11348SLB026	12/17/2011 12:21	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11348SLB026	12/14/2011 18:30	Sally L Appleyard	1
06946	Barium	SW-846 6010B	1	113475708001	12/15/2011 03:09	John W Yanzuk II	1
06949	Cadmium	SW-846 6010B	1	113475708001	12/15/2011 03:09	John W Yanzuk II	1
06951	Chromium	SW-846 6010B	1	113475708001	12/15/2011 03:09	John W Yanzuk II	1
06955	Lead	SW-846 6010B	1	113475708001	12/20/2011 16:25	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113475708001	12/15/2011 03:09	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	113475708001	12/20/2011 16:25	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113471026002A	12/15/2011 10:12	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113475711001	12/15/2011 06:32	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113475708001	12/14/2011 11:20	James L Mertz	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113471026002	12/14/2011 11:48	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113475711001	12/14/2011 12:50	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11350820006A	12/16/2011 19:38	Scott W Freisher	1

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Analysis Report

Sample Description: S01-SS08-0810-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497538
LLI Group # 1280701
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 16:25 by OO

Submitted: 12/13/2011 09:35
Reported: 12/30/2011 15:36

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

08810 SDG#: DHR07-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	14	J	7	0.86
10949	Benzene	71-43-2	0.5	U	0.5	0.86
10949	Bromobenzene	108-86-1	1	U	1	0.86
10949	Bromochloromethane	74-97-5	1	U	1	0.86
10949	Bromodichloromethane	75-27-4	1	U	1	0.86
10949	Bromoform	75-25-2	1	J	1	0.86
10949	Bromomethane	74-83-9	2	U	2	0.86
10949	2-Butanone	78-93-3	4	U	4	0.86
10949	n-Butylbenzene	104-51-8	1	U	1	0.86
10949	sec-Butylbenzene	135-98-8	1	U	1	0.86
10949	tert-Butylbenzene	98-06-6	1	U	1	0.86
10949	Carbon Disulfide	75-15-0	1	U	1	0.86
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.86
10949	Chlorobenzene	108-90-7	1	U	1	0.86
10949	Chloroethane	75-00-3	2	U	2	0.86
10949	Chloroform	67-66-3	1	U	1	0.86
10949	Chloromethane	74-87-3	2	U	2	0.86
10949	2-Chlorotoluene	95-49-8	1	U	1	0.86
10949	4-Chlorotoluene	106-43-4	1	U	1	0.86
10949	Cyclohexane	110-82-7	1	U	1	0.86
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.86
10949	Dibromochloromethane	124-48-1	1	U	1	0.86
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.86
10949	Dibromomethane	74-95-3	1	U	1	0.86
10949	1,2-Dichlorobenzene	95-50-1	2	J	1	0.86
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.86
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.86
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.86
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.86
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.86
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.86
10949	cis-1,2-Dichloroethene	156-59-2	3	J	1	0.86
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.86
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.86
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.86
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.86
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.86
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.86
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.86
10949	Ethylbenzene	100-41-4	1	U	1	0.86
10949	Freon 113	76-13-1	2	U	2	0.86
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.86
10949	2-Hexanone	591-78-6	3	U	3	0.86
10949	Isopropylbenzene	98-82-8	1	U	1	0.86
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.86
10949	Methyl Acetate	79-20-9	2	U	2	0.86
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.86
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.86
10949	Methylcyclohexane	108-87-2	1	U	1	0.86
10949	Methylene Chloride	75-09-2	2	U	2	0.86
10949	Naphthalene	91-20-3	1	U	1	0.86

Sample Description: S01-SS08-0810-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497538
LLI Group # 1280701
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 16:25 by OO

Submitted: 12/13/2011 09:35
Reported: 12/30/2011 15:36

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

08810 SDG#: DHR07-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.86
10949	Styrene	100-42-5	1	U	1	0.86
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.86
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.86
10949	Tetrachloroethene	127-18-4	97		1	0.86
10949	Toluene	108-88-3	1	U	1	0.86
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.86
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.86
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.86
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.86
10949	Trichloroethene	79-01-6	3	J	1	0.86
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.86
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.86
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.86
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.86
10949	Vinyl Acetate	108-05-4	2	U	2	0.86
10949	Vinyl Chloride	75-01-4	1	U	1	0.86
10949	m+p-Xylene	179601-23-1	1	U	1	0.86
10949	o-Xylene	95-47-6	1	U	1	0.86

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: carbon disulfide; 1,2-dichloropropane and cis-1,3-dichloropropene.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	20	U	20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	82	U	82	1
10727	Di-n-butylphthalate	84-74-2	82	U	82	1
10727	Carbazole	86-74-8	20	U	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	20	U	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1

Sample Description: S01-SS08-0810-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497538
LLI Group # 1280701
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 16:25 by OO

Submitted: 12/13/2011 09:35
Reported: 12/30/2011 15:36

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

08810 SDG#: DHR07-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1
10727	Diethylphthalate	84-66-2	82	U	82	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	82	U	82	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1
10727	2,4-Dinitrophenol	51-28-5	410	U	410	1
10727	2,4-Dinitrotoluene	121-14-2	82	U	82	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	82	U	82	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	41	U	41	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	82	U	82	1
10727	4-Nitroaniline	100-01-6	82	U	82	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	82	U	82	1
10727	Pentachlorophenol	87-86-5	41	U	41	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	20	U	20	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
	The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 1,1'-biphenyl dibenzofuran phenanthrene					
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	79.8		0.0211	1

Sample Description: S01-SS08-0810-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497538
LLI Group # 1280701
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 16:25 by OO

Submitted: 12/13/2011 09:35
Reported: 12/30/2011 15:36

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

08810 SDG#: DHR07-05

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 6010B**		**mg/kg**	**mg/kg**	
06949	Cadmium	7440-43-9	0.263 J	0.0234	1
06951	Chromium	7440-47-3	14.6	0.164	1
06955	Lead	7439-92-1	12.9	0.257	1
06936	Selenium	7782-49-2	0.796 U	0.796	1
06966	Silver	7440-22-4	0.0971 U	0.0971	1
	SW-846 6020		**mg/kg**	**mg/kg**	
06125	Arsenic	7440-38-2	10.3	0.0964	2
	SW-846 7471A		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0142 J	0.0084	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	18.6	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113551AA	12/21/2011 23:24	Chelsea B Eastep	0.86
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134726425	12/13/2011 13:48	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134726425	12/13/2011 13:48	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134726425	12/13/2011 13:47	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11348SLB026	12/17/2011 12:45	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11348SLB026	12/14/2011 18:30	Sally L Appleyard	1
06946	Barium	SW-846 6010B	1	113475708001	12/15/2011 03:12	John W Yanzuk II	1
06949	Cadmium	SW-846 6010B	1	113475708001	12/15/2011 03:12	John W Yanzuk II	1
06951	Chromium	SW-846 6010B	1	113475708001	12/15/2011 03:12	John W Yanzuk II	1
06955	Lead	SW-846 6010B	1	113475708001	12/20/2011 16:33	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113475708001	12/15/2011 03:12	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	113475708001	12/15/2011 03:12	John W Yanzuk II	1
06125	Arsenic	SW-846 6020	1	113471026002A	12/15/2011 10:22	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113475711001	12/15/2011 06:33	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113475708001	12/14/2011 11:20	James L Mertz	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113471026002	12/14/2011 11:48	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113475711001	12/14/2011 12:50	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11350820006A	12/16/2011 19:38	Scott W Freisher	1

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Analysis Report

Sample Description: S01-SS08-2123-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497539
LLI Group # 1280701
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 16:45 by OO

Submitted: 12/13/2011 09:35
Reported: 12/30/2011 15:36

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

0821- SDG#: DHR07-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg		ug/kg	
10949	Acetone	67-64-1	8	U	8	1.06
10949	Benzene	71-43-2	0.6	U	0.6	1.06
10949	Bromobenzene	108-86-1	1	U	1	1.06
10949	Bromochloromethane	74-97-5	1	U	1	1.06
10949	Bromodichloromethane	75-27-4	1	U	1	1.06
10949	Bromoform	75-25-2	1	U	1	1.06
10949	Bromomethane	74-83-9	2	U	2	1.06
10949	2-Butanone	78-93-3	4	U	4	1.06
10949	n-Butylbenzene	104-51-8	1	U	1	1.06
10949	sec-Butylbenzene	135-98-8	1	U	1	1.06
10949	tert-Butylbenzene	98-06-6	1	U	1	1.06
10949	Carbon Disulfide	75-15-0	4	J	1	1.06
10949	Carbon Tetrachloride	56-23-5	1	U	1	1.06
10949	Chlorobenzene	108-90-7	1	U	1	1.06
10949	Chloroethane	75-00-3	2	U	2	1.06
10949	Chloroform	67-66-3	1	U	1	1.06
10949	Chloromethane	74-87-3	2	U	2	1.06
10949	2-Chlorotoluene	95-49-8	1	U	1	1.06
10949	4-Chlorotoluene	106-43-4	1	U	1	1.06
10949	Cyclohexane	110-82-7	1	U	1	1.06
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	1.06
10949	Dibromochloromethane	124-48-1	1	U	1	1.06
10949	1,2-Dibromoethane	106-93-4	1	U	1	1.06
10949	Dibromomethane	74-95-3	1	U	1	1.06
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	1.06
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	1.06
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	1.06
10949	Dichlorodifluoromethane	75-71-8	2	U	2	1.06
10949	1,1-Dichloroethane	75-34-3	1	U	1	1.06
10949	1,2-Dichloroethane	107-06-2	1	U	1	1.06
10949	1,1-Dichloroethene	75-35-4	1	U	1	1.06
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	1.06
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	1.06
10949	1,2-Dichloropropane	78-87-5	1	U	1	1.06
10949	1,3-Dichloropropane	142-28-9	1	U	1	1.06
10949	2,2-Dichloropropane	594-20-7	1	U	1	1.06
10949	1,1-Dichloropropene	563-58-6	1	U	1	1.06
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	1.06
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	1.06
10949	Ethylbenzene	100-41-4	1	U	1	1.06
10949	Freon 113	76-13-1	2	U	2	1.06
10949	Hexachlorobutadiene	87-68-3	2	U	2	1.06
10949	2-Hexanone	591-78-6	3	U	3	1.06
10949	Isopropylbenzene	98-82-8	1	U	1	1.06
10949	p-Isopropyltoluene	99-87-6	1	U	1	1.06
10949	Methyl Acetate	79-20-9	2	U	2	1.06
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.6	U	0.6	1.06
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	1.06
10949	Methylcyclohexane	108-87-2	1	U	1	1.06
10949	Methylene Chloride	75-09-2	2	U	2	1.06
10949	Naphthalene	91-20-3	1	U	1	1.06

Sample Description: S01-SS08-2123-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497539
LLI Group # 1280701
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 16:45 by OO

Submitted: 12/13/2011 09:35
Reported: 12/30/2011 15:36

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

0821- SDG#: DHR07-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	1.06
10949	Styrene	100-42-5	1	U	1	1.06
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	1.06
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	1.06
10949	Tetrachloroethene	127-18-4	2	J	1	1.06
10949	Toluene	108-88-3	1	U	1	1.06
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	1.06
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	1.06
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	1.06
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	1.06
10949	Trichloroethene	79-01-6	1	U	1	1.06
10949	Trichlorofluoromethane	75-69-4	2	U	2	1.06
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	1.06
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	1.06
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	1.06
10949	Vinyl Acetate	108-05-4	2	U	2	1.06
10949	Vinyl Chloride	75-01-4	1	U	1	1.06
10949	m+p-Xylene	179601-23-1	1	U	1	1.06
10949	o-Xylene	95-47-6	1	U	1	1.06

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: carbon disulfide; 1,2-dichloropropane and cis-1,3-dichloropropene.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	3	U	3	1
10727	Acenaphthylene	208-96-8	3	U	3	1
10727	Anthracene	120-12-7	3	U	3	1
10727	Benzo(a)anthracene	56-55-3	3	U	3	1
10727	Benzo(a)pyrene	50-32-8	3	U	3	1
10727	Benzo(b)fluoranthene	205-99-2	3	U	3	1
10727	Benzo(g,h,i)perylene	191-24-2	3	U	3	1
10727	Benzo(k)fluoranthene	207-08-9	3	U	3	1
10727	Benzyl alcohol	100-51-6	170	U	170	1
10727	1,1'-Biphenyl	92-52-4	17	U	17	1
10727	4-Bromophenyl-phenylether	101-55-3	17	U	17	1
10727	Butylbenzylphthalate	85-68-7	70	U	70	1
10727	Di-n-butylphthalate	84-74-2	70	U	70	1
10727	Carbazole	86-74-8	17	U	17	1
10727	4-Chloro-3-methylphenol	59-50-7	17	U	17	1
10727	4-Chloroaniline	106-47-8	17	U	17	1
10727	bis(2-Chloroethoxy)methane	111-91-1	17	U	17	1
10727	bis(2-Chloroethyl)ether	111-44-4	17	U	17	1
10727	2-Chloronaphthalene	91-58-7	7	U	7	1
10727	2-Chlorophenol	95-57-8	17	U	17	1
10727	4-Chlorophenyl-phenylether	7005-72-3	17	U	17	1
10727	Chrysene	218-01-9	3	U	3	1
10727	Dibenz(a,h)anthracene	53-70-3	3	U	3	1
10727	Dibenzofuran	132-64-9	17	U	17	1
10727	3,3'-Dichlorobenzidine	91-94-1	100	U	100	1

Sample Description: S01-SS08-2123-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497539
LLI Group # 1280701
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 16:45 by OO

Submitted: 12/13/2011 09:35
Reported: 12/30/2011 15:36

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

0821- SDG#: DHR07-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dichlorophenol	120-83-2	17	U	17	1
10727	Diethylphthalate	84-66-2	70	U	70	1
10727	2,4-Dimethylphenol	105-67-9	17	U	17	1
10727	Dimethylphthalate	131-11-3	70	U	70	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	170	U	170	1
10727	2,4-Dinitrophenol	51-28-5	350	U	350	1
10727	2,4-Dinitrotoluene	121-14-2	70	U	70	1
10727	2,6-Dinitrotoluene	606-20-2	17	U	17	1
10727	1,4-Dioxane	123-91-1	100	U	100	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	70	U	70	1
10727	Fluoranthene	206-44-0	3	U	3	1
10727	Fluorene	86-73-7	3	U	3	1
10727	Hexachlorobenzene	118-74-1	3	U	3	1
10727	Hexachlorocyclopentadiene	77-47-4	170	U	170	1
10727	Hexachloroethane	67-72-1	35	U	35	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	3	U	3	1
10727	Isophorone	78-59-1	17	U	17	1
10727	2-Methylnaphthalene	91-57-6	3	U	3	1
10727	2-Methylphenol	95-48-7	17	U	17	1
10727	4-Methylphenol	106-44-5	17	U	17	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	17	U	17	1
10727	3-Nitroaniline	99-09-2	70	U	70	1
10727	4-Nitroaniline	100-01-6	70	U	70	1
10727	Nitrobenzene	98-95-3	17	U	17	1
10727	2-Nitrophenol	88-75-5	17	U	17	1
10727	4-Nitrophenol	100-02-7	170	U	170	1
10727	N-Nitroso-di-n-propylamine	621-64-7	17	U	17	1
10727	N-Nitrosodiphenylamine	86-30-6	17	U	17	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	70	U	70	1
10727	Pentachlorophenol	87-86-5	35	U	35	1
10727	Phenanthrene	85-01-8	3	U	3	1
10727	Phenol	108-95-2	17	U	17	1
10727	Pyrene	129-00-0	3	U	3	1
10727	2,4,5-Trichlorophenol	95-95-4	17	U	17	1
10727	2,4,6-Trichlorophenol	88-06-2	17	U	17	1
	The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 1,1'-biphenyl dibenzofuran phenanthrene					
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	37.5		0.0185	1

Sample Description: S01-SS08-2123-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497539
LLI Group # 1280701
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 16:45 by OO

Submitted: 12/13/2011 09:35
Reported: 12/30/2011 15:36

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

0821- SDG#: DHR07-06

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 6010B**		**mg/kg**	**mg/kg**	
06949	Cadmium	7440-43-9	0.122 J	0.0205	1
06951	Chromium	7440-47-3	5.01	0.144	1
06955	Lead	7439-92-1	3.25	0.226	1
06936	Selenium	7782-49-2	0.697 U	0.697	1
06966	Silver	7440-22-4	0.0851 U	0.0851	1
	SW-846 6020		**mg/kg**	**mg/kg**	
06125	Arsenic	7440-38-2	7.54	0.0812	2
	SW-846 7471A		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0071 U	0.0071	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	4.4	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113551AA	12/21/2011 23:47	Chelsea B Eastep	1.06
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134726425	12/13/2011 13:50	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134726425	12/13/2011 13:51	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134726425	12/13/2011 13:50	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11348SLB026	12/17/2011 13:09	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11348SLB026	12/14/2011 18:30	Sally L Appleyard	1
06946	Barium	SW-846 6010B	1	113475708001	12/15/2011 03:16	John W Yanzuk II	1
06949	Cadmium	SW-846 6010B	1	113475708001	12/15/2011 03:16	John W Yanzuk II	1
06951	Chromium	SW-846 6010B	1	113475708001	12/15/2011 03:16	John W Yanzuk II	1
06955	Lead	SW-846 6010B	1	113475708001	12/20/2011 16:37	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113475708001	12/15/2011 03:16	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	113475708001	12/15/2011 03:16	John W Yanzuk II	1
06125	Arsenic	SW-846 6020	1	113471026002A	12/15/2011 10:24	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113475711001	12/15/2011 06:38	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113475708001	12/14/2011 11:20	James L Mertz	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113471026002	12/14/2011 11:48	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113475711001	12/14/2011 12:50	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11350820006A	12/16/2011 19:38	Scott W Freisher	1

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Analysis Report

Sample Description: S01-SS07-0002-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497540
LLI Group # 1280701
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 17:00 by OO

Submitted: 12/13/2011 09:35
Reported: 12/30/2011 15:36

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

07002 SDG#: DHR07-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	50		9	1.11
10949	Benzene	71-43-2	3	J	0.6	1.11
10949	Bromobenzene	108-86-1	1	U	1	1.11
10949	Bromochloromethane	74-97-5	1	U	1	1.11
10949	Bromodichloromethane	75-27-4	1	U	1	1.11
10949	Bromoform	75-25-2	1	U	1	1.11
10949	Bromomethane	74-83-9	2	U	2	1.11
10949	2-Butanone	78-93-3	12		5	1.11
10949	n-Butylbenzene	104-51-8	1	U	1	1.11
10949	sec-Butylbenzene	135-98-8	1	U	1	1.11
10949	tert-Butylbenzene	98-06-6	1	U	1	1.11
10949	Carbon Disulfide	75-15-0	14		1	1.11
10949	Carbon Tetrachloride	56-23-5	1	U	1	1.11
10949	Chlorobenzene	108-90-7	1	U	1	1.11
10949	Chloroethane	75-00-3	2	U	2	1.11
10949	Chloroform	67-66-3	1	U	1	1.11
10949	Chloromethane	74-87-3	2	U	2	1.11
10949	2-Chlorotoluene	95-49-8	1	U	1	1.11
10949	4-Chlorotoluene	106-43-4	1	U	1	1.11
10949	Cyclohexane	110-82-7	1	U	1	1.11
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	1.11
10949	Dibromochloromethane	124-48-1	1	U	1	1.11
10949	1,2-Dibromoethane	106-93-4	1	U	1	1.11
10949	Dibromomethane	74-95-3	1	U	1	1.11
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	1.11
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	1.11
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	1.11
10949	Dichlorodifluoromethane	75-71-8	2	U	2	1.11
10949	1,1-Dichloroethane	75-34-3	1	U	1	1.11
10949	1,2-Dichloroethane	107-06-2	1	U	1	1.11
10949	1,1-Dichloroethene	75-35-4	1	U	1	1.11
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	1.11
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	1.11
10949	1,2-Dichloropropane	78-87-5	1	U	1	1.11
10949	1,3-Dichloropropane	142-28-9	1	U	1	1.11
10949	2,2-Dichloropropane	594-20-7	1	U	1	1.11
10949	1,1-Dichloropropene	563-58-6	1	U	1	1.11
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	1.11
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	1.11
10949	Ethylbenzene	100-41-4	1	J	1	1.11
10949	Freon 113	76-13-1	2	U	2	1.11
10949	Hexachlorobutadiene	87-68-3	2	U	2	1.11
10949	2-Hexanone	591-78-6	17		4	1.11
10949	Isopropylbenzene	98-82-8	1	U	1	1.11
10949	p-Isopropyltoluene	99-87-6	1	U	1	1.11
10949	Methyl Acetate	79-20-9	2	U	2	1.11
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.6	U	0.6	1.11
10949	4-Methyl-2-pentanone	108-10-1	5	J	4	1.11
10949	Methylcyclohexane	108-87-2	1	U	1	1.11
10949	Methylene Chloride	75-09-2	2	U	2	1.11
10949	Naphthalene	91-20-3	2	J	1	1.11

Sample Description: S01-SS07-0002-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497540
LLI Group # 1280701
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 17:00 by OO

Submitted: 12/13/2011 09:35
Reported: 12/30/2011 15:36

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

07002 SDG#: DHR07-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	1.11
10949	Styrene	100-42-5	1	U	1	1.11
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	1.11
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	1.11
10949	Tetrachloroethene	127-18-4	2	J	1	1.11
10949	Toluene	108-88-3	6	J	1	1.11
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	1.11
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	1.11
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	1.11
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	1.11
10949	Trichloroethene	79-01-6	1	U	1	1.11
10949	Trichlorofluoromethane	75-69-4	2	U	2	1.11
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	1.11
10949	1,2,4-Trimethylbenzene	95-63-6	2	J	1	1.11
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	1.11
10949	Vinyl Acetate	108-05-4	2	U	2	1.11
10949	Vinyl Chloride	75-01-4	1	U	1	1.11
10949	m+p-Xylene	179601-23-1	2	J	1	1.11
10949	o-Xylene	95-47-6	1	U	1	1.11
Trial ID: RE						
10949	Acetone	67-64-1	57		11	1.39
10949	Benzene	71-43-2	13		0.8	1.39
10949	Bromobenzene	108-86-1	2	U	2	1.39
10949	Bromochloromethane	74-97-5	2	U	2	1.39
10949	Bromodichloromethane	75-27-4	2	U	2	1.39
10949	Bromoform	75-25-2	2	U	2	1.39
10949	Bromomethane	74-83-9	3	U	3	1.39
10949	2-Butanone	78-93-3	15	J	6	1.39
10949	n-Butylbenzene	104-51-8	2	U	2	1.39
10949	sec-Butylbenzene	135-98-8	2	U	2	1.39
10949	tert-Butylbenzene	98-06-6	2	U	2	1.39
10949	Carbon Disulfide	75-15-0	3	J	2	1.39
10949	Carbon Tetrachloride	56-23-5	2	U	2	1.39
10949	Chlorobenzene	108-90-7	2	U	2	1.39
10949	Chloroethane	75-00-3	3	U	3	1.39
10949	Chloroform	67-66-3	2	U	2	1.39
10949	Chloromethane	74-87-3	3	U	3	1.39
10949	2-Chlorotoluene	95-49-8	2	U	2	1.39
10949	4-Chlorotoluene	106-43-4	2	U	2	1.39
10949	Cyclohexane	110-82-7	3	J	2	1.39
10949	1,2-Dibromo-3-chloropropane	96-12-8	3	U	3	1.39
10949	Dibromochloromethane	124-48-1	2	U	2	1.39
10949	1,2-Dibromoethane	106-93-4	2	U	2	1.39
10949	Dibromomethane	74-95-3	2	U	2	1.39
10949	1,2-Dichlorobenzene	95-50-1	2	U	2	1.39
10949	1,3-Dichlorobenzene	541-73-1	2	U	2	1.39
10949	1,4-Dichlorobenzene	106-46-7	2	U	2	1.39
10949	Dichlorodifluoromethane	75-71-8	3	U	3	1.39
10949	1,1-Dichloroethane	75-34-3	2	U	2	1.39
10949	1,2-Dichloroethane	107-06-2	2	U	2	1.39

Sample Description: S01-SS07-0002-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497540
LLI Group # 1280701
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 17:00 by OO

Submitted: 12/13/2011 09:35
Reported: 12/30/2011 15:36

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

07002 SDG#: DHR07-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	1,1-Dichloroethene	75-35-4	2	U	2	1.39
10949	cis-1,2-Dichloroethene	156-59-2	2	U	2	1.39
10949	trans-1,2-Dichloroethene	156-60-5	2	U	2	1.39
10949	1,2-Dichloropropane	78-87-5	2	U	2	1.39
10949	1,3-Dichloropropane	142-28-9	2	U	2	1.39
10949	2,2-Dichloropropane	594-20-7	2	U	2	1.39
10949	1,1-Dichloropropene	563-58-6	2	U	2	1.39
10949	cis-1,3-Dichloropropene	10061-01-5	2	U	2	1.39
10949	trans-1,3-Dichloropropene	10061-02-6	2	U	2	1.39
10949	Ethylbenzene	100-41-4	4	J	2	1.39
10949	Freon 113	76-13-1	3	U	3	1.39
10949	Hexachlorobutadiene	87-68-3	3	U	3	1.39
10949	2-Hexanone	591-78-6	5	U	5	1.39
10949	Isopropylbenzene	98-82-8	2	U	2	1.39
10949	p-Isopropyltoluene	99-87-6	2	U	2	1.39
10949	Methyl Acetate	79-20-9	3	U	3	1.39
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.8	U	0.8	1.39
10949	4-Methyl-2-pentanone	108-10-1	5	U	5	1.39
10949	Methylcyclohexane	108-87-2	2	J	2	1.39
10949	Methylene Chloride	75-09-2	4	J	3	1.39
10949	Naphthalene	91-20-3	2	J	2	1.39
10949	n-Propylbenzene	103-65-1	2	U	2	1.39
10949	Styrene	100-42-5	2	U	2	1.39
10949	1,1,1,2-Tetrachloroethane	630-20-6	2	U	2	1.39
10949	1,1,2,2-Tetrachloroethane	79-34-5	2	U	2	1.39
10949	Tetrachloroethene	127-18-4	2	J	2	1.39
10949	Toluene	108-88-3	22		2	1.39
10949	1,2,3-Trichlorobenzene	87-61-6	2	U	2	1.39
10949	1,2,4-Trichlorobenzene	120-82-1	2	U	2	1.39
10949	1,1,1-Trichloroethane	71-55-6	2	U	2	1.39
10949	1,1,2-Trichloroethane	79-00-5	2	U	2	1.39
10949	Trichloroethene	79-01-6	2	U	2	1.39
10949	Trichlorofluoromethane	75-69-4	3	U	3	1.39
10949	1,2,3-Trichloropropane	96-18-4	2	U	2	1.39
10949	1,2,4-Trimethylbenzene	95-63-6	2	U	2	1.39
10949	1,3,5-Trimethylbenzene	108-67-8	2	U	2	1.39
10949	Vinyl Acetate	108-05-4	3	U	3	1.39
10949	Vinyl Chloride	75-01-4	2	U	2	1.39
10949	m+p-Xylene	179601-23-1	8	J	2	1.39
10949	o-Xylene	95-47-6	3	J	2	1.39

The GC/MS volatile internal standard peak areas were outside the QC limits. A re-analysis was performed, and the matrix effect was confirmed.

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 2,2-dichloropropane.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	37	U	37	10

Sample Description: S01-SS07-0002-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497540
LLI Group # 1280701
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 17:00 by OO

Submitted: 12/13/2011 09:35
Reported: 12/30/2011 15:36

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

07002 SDG#: DHR07-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthylene	208-96-8	360		37	10
10727	Anthracene	120-12-7	200		37	10
10727	Benzo(a)anthracene	56-55-3	570		37	10
10727	Benzo(a)pyrene	50-32-8	850		37	10
10727	Benzo(b)fluoranthene	205-99-2	1,200		37	10
10727	Benzo(g,h,i)perylene	191-24-2	770		37	10
10727	Benzo(k)fluoranthene	207-08-9	470		37	10
10727	Benzyl alcohol	100-51-6	1,800	U	1,800	10
10727	1,1'-Biphenyl	92-52-4	180	U	180	10
10727	4-Bromophenyl-phenylether	101-55-3	180	U	180	10
10727	Butylbenzylphthalate	85-68-7	740	U	740	10
10727	Di-n-butylphthalate	84-74-2	740	U	740	10
10727	Carbazole	86-74-8	180	U	180	10
10727	4-Chloro-3-methylphenol	59-50-7	180	U	180	10
10727	4-Chloroaniline	106-47-8	180	U	180	10
10727	bis(2-Chloroethoxy)methane	111-91-1	180	U	180	10
10727	bis(2-Chloroethyl)ether	111-44-4	180	U	180	10
10727	2-Chloronaphthalene	91-58-7	77	U	77	10
10727	2-Chlorophenol	95-57-8	180	U	180	10
10727	4-Chlorophenyl-phenylether	7005-72-3	180	U	180	10
10727	Chrysene	218-01-9	480		37	10
10727	Dibenz(a,h)anthracene	53-70-3	210		37	10
10727	Dibenzofuran	132-64-9	180	U	180	10
10727	3,3'-Dichlorobenzidine	91-94-1	1,100	U	1,100	10
10727	2,4-Dichlorophenol	120-83-2	180	U	180	10
10727	Diethylphthalate	84-66-2	740	U	740	10
10727	2,4-Dimethylphenol	105-67-9	180	U	180	10
10727	Dimethylphthalate	131-11-3	740	U	740	10
10727	4,6-Dinitro-2-methylphenol	534-52-1	1,800	U	1,800	10
10727	2,4-Dinitrophenol	51-28-5	3,700	U	3,700	10
10727	2,4-Dinitrotoluene	121-14-2	740	U	740	10
10727	2,6-Dinitrotoluene	606-20-2	180	U	180	10
10727	1,4-Dioxane	123-91-1	1,100	U	1,100	10
10727	bis(2-Ethylhexyl)phthalate	117-81-7	740	U	740	10
10727	Fluoranthene	206-44-0	600		37	10
10727	Fluorene	86-73-7	37	U	37	10
10727	Hexachlorobenzene	118-74-1	37	U	37	10
10727	Hexachlorocyclopentadiene	77-47-4	1,800	U	1,800	10
10727	Hexachloroethane	67-72-1	370	U	370	10
10727	Indeno(1,2,3-cd)pyrene	193-39-5	570		37	10
10727	Isophorone	78-59-1	180	U	180	10
10727	2-Methylnaphthalene	91-57-6	37	U	37	10
10727	2-Methylphenol	95-48-7	180	U	180	10
10727	4-Methylphenol	106-44-5	180	U	180	10
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	180	U	180	10
10727	3-Nitroaniline	99-09-2	740	U	740	10
10727	4-Nitroaniline	100-01-6	740	U	740	10
10727	Nitrobenzene	98-95-3	180	U	180	10

Sample Description: S01-SS07-0002-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497540
LLI Group # 1280701
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 17:00 by OO

Submitted: 12/13/2011 09:35
Reported: 12/30/2011 15:36

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

07002 SDG#: DHR07-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2-Nitrophenol	88-75-5	180	U	180	10
10727	4-Nitrophenol	100-02-7	1,800	U	1,800	10
10727	N-Nitroso-di-n-propylamine	621-64-7	180	U	180	10
10727	N-Nitrosodiphenylamine	86-30-6	180	U	180	10
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	740	U	740	10
10727	Pentachlorophenol	87-86-5	370	U	370	10
10727	Phenanthrene	85-01-8	110	J	37	10
10727	Phenol	108-95-2	180	U	180	10
10727	Pyrene	129-00-0	580		37	10
10727	2,4,5-Trichlorophenol	95-95-4	180	U	180	10
10727	2,4,6-Trichlorophenol	88-06-2	180	U	180	10
	Reporting limits were raised due to interference from the sample matrix.					
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	795		0.0964	5
06949	Cadmium	7440-43-9	0.0461	J	0.0214	1
06951	Chromium	7440-47-3	36.7		0.150	1
06955	Lead	7439-92-1	11.0		1.18	5
06936	Selenium	7782-49-2	8.74		0.729	1
06966	Silver	7440-22-4	0.0889	U	0.0889	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	7.50		0.0874	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0073	U	0.0073	1
Wet Chemistry	**SM20 2540 G**		**%**		**%**	
00111	Moisture	n.a.	9.4		0.50	1
	"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.					

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113561AA	12/22/2011 15:19	Chelsea B Eastep	1.11
10949	8260 Ext. Soil Master	SW-846 8260B	2	A113562AA	12/23/2011 01:22	Andrea E Lando	1.39
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134726425	12/13/2011 13:52	Larry E Bevins	n.a.

Sample Description: S01-SS07-0002-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497540
LLI Group # 1280701
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 17:00 by OO

Submitted: 12/13/2011 09:35
Reported: 12/30/2011 15:36

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

07002 SDG#: DHR07-07

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134726425	12/13/2011 13:53	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134726425	12/13/2011 13:52	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11353SLC026	12/21/2011 07:09	Brian K Graham	10
10809	BNA Soil Microwave	SW-846 3546	2	11353SLC026	12/20/2011 13:00	Olivia I Santiago	1
06946	Barium	SW-846 6010B	1	113475708001	12/20/2011 16:45	Eric L Eby	5
06949	Cadmium	SW-846 6010B	1	113475708001	12/15/2011 03:20	John W Yanzuk II	1
06951	Chromium	SW-846 6010B	1	113475708001	12/15/2011 03:20	John W Yanzuk II	1
06955	Lead	SW-846 6010B	1	113475708001	12/20/2011 16:45	Eric L Eby	5
06936	Selenium	SW-846 6010B	1	113475708001	12/15/2011 03:20	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	113475708001	12/15/2011 03:20	John W Yanzuk II	1
06125	Arsenic	SW-846 6020	1	113471026002A	12/15/2011 10:26	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113475711001	12/15/2011 06:40	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113475708001	12/14/2011 11:20	James L Mertz	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113471026002	12/14/2011 11:48	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113475711001	12/14/2011 12:50	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11350820006A	12/16/2011 19:38	Scott W Freisher	1

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Analysis Report

Sample Description: S01-SS07-0305-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497541
LLI Group # 1280701
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 17:05 by OO

Submitted: 12/13/2011 09:35
Reported: 12/30/2011 15:36

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

07305 SDG#: DHR07-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	23		8	0.88
10949	Benzene	71-43-2	0.5	U	0.5	0.88
10949	Bromobenzene	108-86-1	1	U	1	0.88
10949	Bromochloromethane	74-97-5	1	U	1	0.88
10949	Bromodichloromethane	75-27-4	1	U	1	0.88
10949	Bromoform	75-25-2	1	U	1	0.88
10949	Bromomethane	74-83-9	2	U	2	0.88
10949	2-Butanone	78-93-3	4	U	4	0.88
10949	n-Butylbenzene	104-51-8	1	U	1	0.88
10949	sec-Butylbenzene	135-98-8	1	U	1	0.88
10949	tert-Butylbenzene	98-06-6	1	U	1	0.88
10949	Carbon Disulfide	75-15-0	1	U	1	0.88
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.88
10949	Chlorobenzene	108-90-7	1	U	1	0.88
10949	Chloroethane	75-00-3	2	U	2	0.88
10949	Chloroform	67-66-3	1	U	1	0.88
10949	Chloromethane	74-87-3	2	U	2	0.88
10949	2-Chlorotoluene	95-49-8	1	U	1	0.88
10949	4-Chlorotoluene	106-43-4	1	U	1	0.88
10949	Cyclohexane	110-82-7	1	U	1	0.88
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.88
10949	Dibromochloromethane	124-48-1	1	U	1	0.88
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.88
10949	Dibromomethane	74-95-3	1	U	1	0.88
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.88
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.88
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.88
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.88
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.88
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.88
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.88
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.88
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.88
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.88
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.88
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.88
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.88
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.88
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.88
10949	Ethylbenzene	100-41-4	1	U	1	0.88
10949	Freon 113	76-13-1	2	U	2	0.88
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.88
10949	2-Hexanone	591-78-6	5	J	3	0.88
10949	Isopropylbenzene	98-82-8	1	U	1	0.88
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.88
10949	Methyl Acetate	79-20-9	2	U	2	0.88
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.88
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.88
10949	Methylcyclohexane	108-87-2	1	U	1	0.88
10949	Methylene Chloride	75-09-2	2	U	2	0.88
10949	Naphthalene	91-20-3	1	U	1	0.88

Sample Description: S01-SS07-0305-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497541
LLI Group # 1280701
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 17:05 by OO

Submitted: 12/13/2011 09:35
Reported: 12/30/2011 15:36

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

07305 SDG#: DHR07-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.88
10949	Styrene	100-42-5	1	U	1	0.88
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.88
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.88
10949	Tetrachloroethene	127-18-4	3	J	1	0.88
10949	Toluene	108-88-3	1	U	1	0.88
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.88
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.88
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.88
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.88
10949	Trichloroethene	79-01-6	1	U	1	0.88
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.88
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.88
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.88
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.88
10949	Vinyl Acetate	108-05-4	2	U	2	0.88
10949	Vinyl Chloride	75-01-4	1	U	1	0.88
10949	m+p-Xylene	179601-23-1	1	U	1	0.88
10949	o-Xylene	95-47-6	1	U	1	0.88
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	20	U	20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	82	U	82	1
10727	Di-n-butylphthalate	84-74-2	82	U	82	1
10727	Carbazole	86-74-8	20	U	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	20	U	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1
10727	Diethylphthalate	84-66-2	82	U	82	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	82	U	82	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1

Sample Description: S01-SS07-0305-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497541
LLI Group # 1280701
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 17:05 by OO

Submitted: 12/13/2011 09:35
Reported: 12/30/2011 15:36

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

07305 SDG#: DHR07-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	410	U	410	1
10727	2,4-Dinitrotoluene	121-14-2	82	U	82	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	82	U	82	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	41	U	41	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	82	U	82	1
10727	4-Nitroaniline	100-01-6	82	U	82	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	82	U	82	1
10727	Pentachlorophenol	87-86-5	41	U	41	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	20	U	20	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	85.5		0.0214	1
06949	Cadmium	7440-43-9	0.137	J	0.0238	1
06951	Chromium	7440-47-3	21.4		0.167	1
06955	Lead	7439-92-1	15.9		0.262	1
06936	Selenium	7782-49-2	0.809	U	0.809	1
06966	Silver	7440-22-4	0.0988	U	0.0988	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	12.8		0.0952	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0147	J	0.0086	1

Sample Description: S01-SS07-0305-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497541
LLI Group # 1280701
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 17:05 by OO

Submitted: 12/13/2011 09:35
Reported: 12/30/2011 15:36

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

07305 SDG#: DHR07-08

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	18.4	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113561AA	12/22/2011 15:41	Chelsea B Eastep	0.88
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134726425	12/13/2011 13:54	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134726425	12/13/2011 13:55	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134726425	12/13/2011 13:54	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11353SLC026	12/21/2011 07:33	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	2	11353SLC026	12/20/2011 13:00	Olivia I Santiago	1
06946	Barium	SW-846 6010B	1	113475708001	12/15/2011 03:25	John W Yanzuk II	1
06949	Cadmium	SW-846 6010B	1	113475708001	12/15/2011 03:25	John W Yanzuk II	1
06951	Chromium	SW-846 6010B	1	113475708001	12/15/2011 03:25	John W Yanzuk II	1
06955	Lead	SW-846 6010B	1	113475708001	12/20/2011 16:49	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113475708001	12/15/2011 03:25	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	113475708001	12/15/2011 03:25	John W Yanzuk II	1
06125	Arsenic	SW-846 6020	1	113471026002A	12/15/2011 10:28	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113475711001	12/15/2011 06:41	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113475708001	12/14/2011 11:20	James L Mertz	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113471026002	12/14/2011 11:48	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113475711001	12/14/2011 12:50	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11350820006A	12/16/2011 19:38	Scott W Freisher	1

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Analysis Report

Sample Description: S01-SS07-0810-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497542
LLI Group # 1280701
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 17:10 by OO

Submitted: 12/13/2011 09:35
Reported: 12/30/2011 15:36

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

07810 SDG#: DHR07-09

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	18	J	7	0.85
10949	Benzene	71-43-2	0.5	U	0.5	0.85
10949	Bromobenzene	108-86-1	1	U	1	0.85
10949	Bromochloromethane	74-97-5	1	U	1	0.85
10949	Bromodichloromethane	75-27-4	1	U	1	0.85
10949	Bromoform	75-25-2	1	U	1	0.85
10949	Bromomethane	74-83-9	2	U	2	0.85
10949	2-Butanone	78-93-3	4	U	4	0.85
10949	n-Butylbenzene	104-51-8	1	U	1	0.85
10949	sec-Butylbenzene	135-98-8	1	U	1	0.85
10949	tert-Butylbenzene	98-06-6	1	U	1	0.85
10949	Carbon Disulfide	75-15-0	1	U	1	0.85
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.85
10949	Chlorobenzene	108-90-7	1	U	1	0.85
10949	Chloroethane	75-00-3	2	U	2	0.85
10949	Chloroform	67-66-3	1	U	1	0.85
10949	Chloromethane	74-87-3	2	U	2	0.85
10949	2-Chlorotoluene	95-49-8	1	U	1	0.85
10949	4-Chlorotoluene	106-43-4	1	U	1	0.85
10949	Cyclohexane	110-82-7	1	U	1	0.85
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.85
10949	Dibromochloromethane	124-48-1	1	U	1	0.85
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.85
10949	Dibromomethane	74-95-3	1	U	1	0.85
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.85
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.85
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.85
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.85
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.85
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.85
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.85
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.85
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.85
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.85
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.85
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.85
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.85
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.85
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.85
10949	Ethylbenzene	100-41-4	1	U	1	0.85
10949	Freon 113	76-13-1	2	U	2	0.85
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.85
10949	2-Hexanone	591-78-6	3	U	3	0.85
10949	Isopropylbenzene	98-82-8	1	U	1	0.85
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.85
10949	Methyl Acetate	79-20-9	2	U	2	0.85
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.85
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.85
10949	Methylcyclohexane	108-87-2	1	U	1	0.85
10949	Methylene Chloride	75-09-2	2	U	2	0.85
10949	Naphthalene	91-20-3	1	U	1	0.85

Sample Description: S01-SS07-0810-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497542
LLI Group # 1280701
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 17:10 by OO

Submitted: 12/13/2011 09:35
Reported: 12/30/2011 15:36

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

07810 SDG#: DHR07-09

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.85
10949	Styrene	100-42-5	1	U	1	0.85
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.85
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.85
10949	Tetrachloroethene	127-18-4	4	J	1	0.85
10949	Toluene	108-88-3	1	U	1	0.85
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.85
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.85
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.85
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.85
10949	Trichloroethene	79-01-6	1	U	1	0.85
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.85
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.85
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.85
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.85
10949	Vinyl Acetate	108-05-4	2	U	2	0.85
10949	Vinyl Chloride	75-01-4	1	U	1	0.85
10949	m+p-Xylene	179601-23-1	1	U	1	0.85
10949	o-Xylene	95-47-6	1	U	1	0.85
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	210	U	210	1
10727	1,1'-Biphenyl	92-52-4	21	U	21	1
10727	4-Bromophenyl-phenylether	101-55-3	21	U	21	1
10727	Butylbenzylphthalate	85-68-7	83	U	83	1
10727	Di-n-butylphthalate	84-74-2	83	U	83	1
10727	Carbazole	86-74-8	21	U	21	1
10727	4-Chloro-3-methylphenol	59-50-7	21	U	21	1
10727	4-Chloroaniline	106-47-8	21	U	21	1
10727	bis(2-Chloroethoxy)methane	111-91-1	21	U	21	1
10727	bis(2-Chloroethyl)ether	111-44-4	21	U	21	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	21	U	21	1
10727	4-Chlorophenyl-phenylether	7005-72-3	21	U	21	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	21	U	21	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	21	U	21	1
10727	Diethylphthalate	84-66-2	83	U	83	1
10727	2,4-Dimethylphenol	105-67-9	21	U	21	1
10727	Dimethylphthalate	131-11-3	83	U	83	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	210	U	210	1

Sample Description: S01-SS07-0810-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497542
LLI Group # 1280701
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 17:10 by OO

Submitted: 12/13/2011 09:35
Reported: 12/30/2011 15:36

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

07810 SDG#: DHR07-09

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	410	U	410	1
10727	2,4-Dinitrotoluene	121-14-2	83	U	83	1
10727	2,6-Dinitrotoluene	606-20-2	21	U	21	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	83	U	83	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	210	U	210	1
10727	Hexachloroethane	67-72-1	41	U	41	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	21	U	21	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	21	U	21	1
10727	4-Methylphenol	106-44-5	21	U	21	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	21	U	21	1
10727	3-Nitroaniline	99-09-2	83	U	83	1
10727	4-Nitroaniline	100-01-6	83	U	83	1
10727	Nitrobenzene	98-95-3	21	U	21	1
10727	2-Nitrophenol	88-75-5	21	U	21	1
10727	4-Nitrophenol	100-02-7	210	U	210	1
10727	N-Nitroso-di-n-propylamine	621-64-7	21	U	21	1
10727	N-Nitrosodiphenylamine	86-30-6	21	U	21	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	83	U	83	1
10727	Pentachlorophenol	87-86-5	41	U	41	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	21	U	21	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	21	U	21	1
10727	2,4,6-Trichlorophenol	88-06-2	21	U	21	1
	The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 1,1'-biphenyl dibenzofuran phenanthrene					
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	61.8		0.0213	1
06949	Cadmium	7440-43-9	0.199	J	0.0236	1
06951	Chromium	7440-47-3	13.8		0.165	1
06955	Lead	7439-92-1	11.7		0.260	1
06936	Selenium	7782-49-2	0.803	U	0.803	1
06966	Silver	7440-22-4	0.0981	U	0.0981	1

Sample Description: S01-SS07-0810-121211 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6497542
LLI Group # 1280701
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/12/2011 17:10 by OO

Submitted: 12/13/2011 09:35
Reported: 12/30/2011 15:36

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

07810 SDG#: DHR07-09

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 6020**		**mg/kg**	**mg/kg**	
06125	Arsenic	7440-38-2	10.1	0.0983	2
	SW-846 7471A		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0138 J	0.0083	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	19.4	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113561AA	12/22/2011 16:04	Chelsea B Eastep	0.85
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134726425	12/13/2011 13:56	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134726425	12/13/2011 13:57	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134726425	12/13/2011 13:56	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11348SLB026	12/19/2011 04:24	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11348SLB026	12/14/2011 18:30	Sally L Appleyard	1
06946	Barium	SW-846 6010B	1	113475708001	12/15/2011 03:29	John W Yanzuk II	1
06949	Cadmium	SW-846 6010B	1	113475708001	12/15/2011 03:29	John W Yanzuk II	1
06951	Chromium	SW-846 6010B	1	113475708001	12/15/2011 03:29	John W Yanzuk II	1
06955	Lead	SW-846 6010B	1	113475708001	12/20/2011 16:53	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113475708001	12/15/2011 03:29	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	113475708001	12/15/2011 03:29	John W Yanzuk II	1
06125	Arsenic	SW-846 6020	1	113471026002A	12/15/2011 10:30	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113475711001	12/15/2011 06:42	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113475708001	12/14/2011 11:20	James L Mertz	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113471026002	12/14/2011 11:48	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113475711001	12/14/2011 12:50	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11350820006A	12/16/2011 19:38	Scott W Freisher	1

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Analysis Report

Sample Description: 121211TB Water Sample
Dow Hanging Rock, OH

LLI Sample # WW 6497543
LLI Group # 1280701
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/01/2011

Submitted: 12/13/2011 09:35
Reported: 12/30/2011 15:36

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

TBD12 SDG#: DHR07-10TB*

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**		**ug/l**	
10904	Acetone	67-64-1	6	U	6	1
10904	Benzene	71-43-2	0.5	U	0.5	1
10904	Bromobenzene	108-86-1	1	U	1	1
10904	Bromochloromethane	74-97-5	1	U	1	1
10904	Bromodichloromethane	75-27-4	1	U	1	1
10904	Bromoform	75-25-2	1	U	1	1
10904	Bromomethane	74-83-9	1	U	1	1
10904	2-Butanone	78-93-3	3	U	3	1
10904	n-Butylbenzene	104-51-8	1	U	1	1
10904	sec-Butylbenzene	135-98-8	1	U	1	1
10904	tert-Butylbenzene	98-06-6	1	U	1	1
10904	Carbon Disulfide	75-15-0	1	U	1	1
10904	Carbon Tetrachloride	56-23-5	1	U	1	1
10904	Chlorobenzene	108-90-7	0.8	U	0.8	1
10904	Chloroethane	75-00-3	1	U	1	1
10904	Chloroform	67-66-3	0.8	U	0.8	1
10904	Chloromethane	74-87-3	1	U	1	1
10904	2-Chlorotoluene	95-49-8	1	U	1	1
10904	4-Chlorotoluene	106-43-4	1	U	1	1
10904	Cyclohexane	110-82-7	2	U	2	1
10904	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	1
10904	Dibromochloromethane	124-48-1	1	U	1	1
10904	1,2-Dibromoethane	106-93-4	1	U	1	1
10904	Dibromomethane	74-95-3	1	U	1	1
10904	1,2-Dichlorobenzene	95-50-1	1	U	1	1
10904	1,3-Dichlorobenzene	541-73-1	1	U	1	1
10904	1,4-Dichlorobenzene	106-46-7	1	U	1	1
10904	Dichlorodifluoromethane	75-71-8	2	U	2	1
10904	1,1-Dichloroethane	75-34-3	1	U	1	1
10904	1,2-Dichloroethane	107-06-2	1	U	1	1
10904	1,1-Dichloroethene	75-35-4	0.8	U	0.8	1
10904	cis-1,2-Dichloroethene	156-59-2	0.8	U	0.8	1
10904	trans-1,2-Dichloroethene	156-60-5	0.8	U	0.8	1
10904	1,2-Dichloropropane	78-87-5	1	U	1	1
10904	1,3-Dichloropropane	142-28-9	1	U	1	1
10904	2,2-Dichloropropane	594-20-7	1	U	1	1
10904	1,1-Dichloropropene	563-58-6	1	U	1	1
10904	cis-1,3-Dichloropropene	10061-01-5	1	U	1	1
10904	trans-1,3-Dichloropropene	10061-02-6	1	U	1	1
10904	Ethylbenzene	100-41-4	0.8	U	0.8	1
10904	Freon 113	76-13-1	2	U	2	1
10904	Hexachlorobutadiene	87-68-3	2	U	2	1
10904	2-Hexanone	591-78-6	3	U	3	1
10904	Isopropylbenzene	98-82-8	1	U	1	1
10904	p-Isopropyltoluene	99-87-6	1	U	1	1
10904	Methyl Acetate	79-20-9	1	U	1	1
10904	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	1
10904	4-Methyl-2-pentanone	108-10-1	3	U	3	1
10904	Methylcyclohexane	108-87-2	1	U	1	1
10904	Methylene Chloride	75-09-2	2	U	2	1
10904	Naphthalene	91-20-3	1	U	1	1

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Analysis Report

Sample Description: 121211TB Water Sample
Dow Hanging Rock, OH

LLI Sample # WW 6497543
LLI Group # 1280701
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/01/2011

Submitted: 12/13/2011 09:35
Reported: 12/30/2011 15:36

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

TBD12 SDG#: DHR07-10TB*

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**		**ug/l**	
10904	n-Propylbenzene	103-65-1	1	U	1	1
10904	Styrene	100-42-5	1	U	1	1
10904	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	1
10904	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	1
10904	Tetrachloroethene	127-18-4	0.8	U	0.8	1
10904	Toluene	108-88-3	0.7	U	0.7	1
10904	1,2,3-Trichlorobenzene	87-61-6	1	U	1	1
10904	1,2,4-Trichlorobenzene	120-82-1	1	U	1	1
10904	1,1,1-Trichloroethane	71-55-6	0.8	U	0.8	1
10904	1,1,2-Trichloroethane	79-00-5	0.8	U	0.8	1
10904	Trichloroethene	79-01-6	1	U	1	1
10904	Trichlorofluoromethane	75-69-4	2	U	2	1
10904	1,2,3-Trichloropropane	96-18-4	1	U	1	1
10904	1,2,4-Trimethylbenzene	95-63-6	1	U	1	1
10904	1,3,5-Trimethylbenzene	108-67-8	1	U	1	1
10904	Vinyl Acetate	108-05-4	2	U	2	1
10904	Vinyl Chloride	75-01-4	1	U	1	1
10904	m+p-Xylene	179601-23-1	0.8	U	0.8	1
10904	o-Xylene	95-47-6	0.8	U	0.8	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10904	8260 Ext. Water Master	SW-846 8260B	1	L113541AA	12/20/2011 12:13	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	L113541AA	12/20/2011 12:13	Kerri E Legerlotz	1

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280701
Reported: 12/30/11 at 03:36 PM

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: A113551AA	Sample number(s): 6497534-6497535,6497537-6497539								
Acetone	7	U	7.	ug/kg	82	80	32-209	2	30
Benzene	0.5	U	0.5	ug/kg	82	82	80-120	0	30
Bromobenzene	1	U	1.	ug/kg	95	96	79-120	1	30
Bromochloromethane	1	U	1.	ug/kg	96	95	79-124	1	30
Bromodichloromethane	1	U	1.	ug/kg	84	85	78-120	1	30
Bromoform	1	U	1.	ug/kg	96	92	70-120	5	30
Bromomethane	2	U	2.	ug/kg	87	85	32-162	3	30
2-Butanone	4	U	4.	ug/kg	95	87	46-153	9	30
n-Butylbenzene	1	U	1.	ug/kg	89	89	72-120	0	30
sec-Butylbenzene	1	U	1.	ug/kg	94	92	75-120	2	30
tert-Butylbenzene	1	U	1.	ug/kg	95	93	75-120	2	30
Carbon Disulfide	1	U	1.	ug/kg	59*	58*	67-122	2	30
Carbon Tetrachloride	1	U	1.	ug/kg	93	90	69-122	4	30
Chlorobenzene	1	U	1.	ug/kg	93	92	80-120	1	30
Chloroethane	2	U	2.	ug/kg	80	77	37-154	4	30
Chloroform	1	U	1.	ug/kg	92	90	80-120	2	30
Chloromethane	2	U	2.	ug/kg	71	69	54-132	4	30
2-Chlorotoluene	1	U	1.	ug/kg	89	89	78-120	1	30
4-Chlorotoluene	1	U	1.	ug/kg	92	92	79-120	0	30
Cyclohexane	1	U	1.	ug/kg	75	73	62-121	3	30
1,2-Dibromo-3-chloropropane	2	U	2.	ug/kg	98	88	58-120	10	30
Dibromochloromethane	1	U	1.	ug/kg	93	91	77-120	2	30
1,2-Dibromoethane	1	U	1.	ug/kg	95	92	80-120	3	30
Dibromomethane	1	U	1.	ug/kg	86	84	80-120	2	30
1,2-Dichlorobenzene	1	U	1.	ug/kg	95	95	79-120	0	30
1,3-Dichlorobenzene	1	U	1.	ug/kg	95	96	78-120	1	30
1,4-Dichlorobenzene	1	U	1.	ug/kg	95	96	79-120	1	30
Dichlorodifluoromethane	2	U	2.	ug/kg	81	80	20-120	2	30
1,1-Dichloroethane	1	U	1.	ug/kg	83	83	80-120	0	30
1,2-Dichloroethane	1	U	1.	ug/kg	102	101	71-129	1	30
1,1-Dichloroethene	1	U	1.	ug/kg	75	74	73-123	2	30
cis-1,2-Dichloroethene	1	U	1.	ug/kg	83	83	80-120	0	30
trans-1,2-Dichloroethene	1	U	1.	ug/kg	80	80	79-120	1	30
1,2-Dichloropropane	1	U	1.	ug/kg	77*	76*	80-120	1	30
1,3-Dichloropropane	1	U	1.	ug/kg	88	87	80-120	1	30
2,2-Dichloropropane	1	U	1.	ug/kg	81	79	72-123	2	30
1,1-Dichloropropene	1	U	1.	ug/kg	85	84	77-120	2	30
cis-1,3-Dichloropropene	1	U	1.	ug/kg	77*	78*	80-120	1	30
trans-1,3-Dichloropropene	1	U	1.	ug/kg	83	83	77-120	1	30
Ethylbenzene	1	U	1.	ug/kg	92	93	80-120	1	30
Freon 113	2	U	2.	ug/kg	82	80	61-126	3	30
Hexachlorobutadiene	2	U	2.	ug/kg	114	111	57-120	3	30
2-Hexanone	3	U	3.	ug/kg	78	80	45-155	3	30
Isopropylbenzene	1	U	1.	ug/kg	98	97	76-120	1	30
p-Isopropyltoluene	1	U	1.	ug/kg	98	97	75-120	1	30

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280701
Reported: 12/30/11 at 03:36 PM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Methyl Acetate	2	U	2.	ug/kg	101	104	61-152	2	30
Methyl Tertiary Butyl Ether	0.5	U	0.5	ug/kg	87	87	74-121	0	30
4-Methyl-2-pentanone	3	U	3.	ug/kg	91	88	61-134	4	30
Methylcyclohexane	1	U	1.	ug/kg	92	91	57-138	1	30
Methylene Chloride	2	U	2.	ug/kg	78	78	76-124	0	30
Naphthalene	1	U	1.	ug/kg	100	96	59-123	3	30
n-Propylbenzene	1	U	1.	ug/kg	91	90	77-120	1	30
Styrene	1	U	1.	ug/kg	96	95	76-120	1	30
1,1,1,2-Tetrachloroethane	1	U	1.	ug/kg	98	97	80-120	1	30
1,1,2,2-Tetrachloroethane	1	U	1.	ug/kg	83	80	71-123	4	30
Tetrachloroethene	1	U	1.	ug/kg	104	104	77-120	0	30
Toluene	1	U	1.	ug/kg	87	88	80-120	0	30
1,2,3-Trichlorobenzene	1	U	1.	ug/kg	107	105	64-120	1	30
1,2,4-Trichlorobenzene	1	U	1.	ug/kg	99	101	68-120	2	30
1,1,1-Trichloroethane	1	U	1.	ug/kg	93	92	71-125	1	30
1,1,2-Trichloroethane	1	U	1.	ug/kg	88	88	80-120	0	30
Trichloroethene	1	U	1.	ug/kg	86	85	80-120	1	30
Trichlorofluoromethane	2	U	2.	ug/kg	103	99	58-133	4	30
1,2,3-Trichloropropane	1	U	1.	ug/kg	91	91	71-123	1	30
1,2,4-Trimethylbenzene	1	U	1.	ug/kg	93	93	79-120	1	30
1,3,5-Trimethylbenzene	1	U	1.	ug/kg	95	94	78-120	1	30
Vinyl Acetate	2	U	2.	ug/kg	79	79	56-137	1	30
Vinyl Chloride	1	U	1.	ug/kg	73	70	53-120	3	30
m+p-Xylene	1	U	1.	ug/kg	94	93	80-120	1	30
o-Xylene	1	U	1.	ug/kg	91	91	80-120	1	30
Batch number: A113561AA	Sample number(s): 6497536,6497540-6497542								
Acetone	7	U	7.	ug/kg	113		32-209		
Benzene	0.5	U	0.5	ug/kg	93		80-120		
Bromobenzene	1	U	1.	ug/kg	97		79-120		
Bromochloromethane	1	U	1.	ug/kg	92		79-124		
Bromodichloromethane	1	U	1.	ug/kg	91		78-120		
Bromoform	1	U	1.	ug/kg	91		70-120		
Bromomethane	2	U	2.	ug/kg	87		32-162		
2-Butanone	4	U	4.	ug/kg	116		46-153		
n-Butylbenzene	1	U	1.	ug/kg	99		72-120		
sec-Butylbenzene	1	U	1.	ug/kg	102		75-120		
tert-Butylbenzene	1	U	1.	ug/kg	97		75-120		
Carbon Disulfide	1	U	1.	ug/kg	82		67-122		
Carbon Tetrachloride	1	U	1.	ug/kg	94		69-122		
Chlorobenzene	1	U	1.	ug/kg	95		80-120		
Chloroethane	2	U	2.	ug/kg	83		37-154		
Chloroform	1	U	1.	ug/kg	97		80-120		
Chloromethane	2	U	2.	ug/kg	77		54-132		
2-Chlorotoluene	1	U	1.	ug/kg	94		78-120		
4-Chlorotoluene	1	U	1.	ug/kg	97		79-120		
Cyclohexane	1	U	1.	ug/kg	98		62-121		
1,2-Dibromo-3-chloropropane	2	U	2.	ug/kg	108		58-120		
Dibromochloromethane	1	U	1.	ug/kg	90		77-120		
1,2-Dibromoethane	1	U	1.	ug/kg	99		80-120		
Dibromomethane	1	U	1.	ug/kg	92		80-120		
1,2-Dichlorobenzene	1	U	1.	ug/kg	96		79-120		
1,3-Dichlorobenzene	1	U	1.	ug/kg	98		78-120		
1,4-Dichlorobenzene	1	U	1.	ug/kg	97		79-120		
Dichlorodifluoromethane	2	U	2.	ug/kg	79		20-120		
1,1-Dichloroethane	1	U	1.	ug/kg	96		80-120		
1,2-Dichloroethane	1	U	1.	ug/kg	111		71-129		
1,1-Dichloroethene	1	U	1.	ug/kg	88		73-123		

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280701
Reported: 12/30/11 at 03:36 PM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
cis-1,2-Dichloroethene	1	U	1.	ug/kg	90		80-120		
trans-1,2-Dichloroethene	1	U	1.	ug/kg	88		79-120		
1,2-Dichloropropane	1	U	1.	ug/kg	89		80-120		
1,3-Dichloropropane	1	U	1.	ug/kg	98		80-120		
2,2-Dichloropropane	1	U	1.	ug/kg	89		72-123		
1,1-Dichloropropene	1	U	1.	ug/kg	95		77-120		
cis-1,3-Dichloropropene	1	U	1.	ug/kg	87		80-120		
trans-1,3-Dichloropropene	1	U	1.	ug/kg	91		77-120		
Ethylbenzene	1	U	1.	ug/kg	100		80-120		
Freon 113	2	U	2.	ug/kg	92		61-126		
Hexachlorobutadiene	2	U	2.	ug/kg	103		57-120		
2-Hexanone	3	U	3.	ug/kg	99		45-155		
Isopropylbenzene	1	U	1.	ug/kg	102		76-120		
p-Isopropyltoluene	1	U	1.	ug/kg	102		75-120		
Methyl Acetate	2	U	2.	ug/kg	125		61-152		
Methyl Tertiary Butyl Ether	0.5	U	0.5	ug/kg	97		74-121		
4-Methyl-2-pentanone	3	U	3.	ug/kg	113		61-134		
Methylcyclohexane	1	U	1.	ug/kg	101		57-138		
Methylene Chloride	2	U	2.	ug/kg	87		76-124		
Naphthalene	1	U	1.	ug/kg	102		59-123		
n-Propylbenzene	1	U	1.	ug/kg	102		77-120		
Styrene	1	U	1.	ug/kg	100		76-120		
1,1,1,2-Tetrachloroethane	1	U	1.	ug/kg	94		80-120		
1,1,2,2-Tetrachloroethane	1	U	1.	ug/kg	95		71-123		
Tetrachloroethene	1	U	1.	ug/kg	100		77-120		
Toluene	1	U	1.	ug/kg	95		80-120		
1,2,3-Trichlorobenzene	1	U	1.	ug/kg	103		64-120		
1,2,4-Trichlorobenzene	1	U	1.	ug/kg	98		68-120		
1,1,1-Trichloroethane	1	U	1.	ug/kg	95		71-125		
1,1,2-Trichloroethane	1	U	1.	ug/kg	97		80-120		
Trichloroethene	1	U	1.	ug/kg	91		80-120		
Trichlorofluoromethane	2	U	2.	ug/kg	105		58-133		
1,2,3-Trichloropropane	1	U	1.	ug/kg	99		71-123		
1,2,4-Trimethylbenzene	1	U	1.	ug/kg	101		79-120		
1,3,5-Trimethylbenzene	1	U	1.	ug/kg	102		78-120		
Vinyl Acetate	2	U	2.	ug/kg	92	89	56-137	3	30
Vinyl Chloride	1	U	1.	ug/kg	78		53-120		
m+p-Xylene	1	U	1.	ug/kg	97		80-120		
o-Xylene	1	U	1.	ug/kg	95		80-120		
Batch number: A113562AA	Sample number(s): 6497540								
Acetone	7	U	7.	ug/kg	120		32-209		
Benzene	0.5	U	0.5	ug/kg	93		80-120		
Bromobenzene	1	U	1.	ug/kg	100		79-120		
Bromochloromethane	1	U	1.	ug/kg	89		79-124		
Bromodichloromethane	1	U	1.	ug/kg	87		78-120		
Bromoform	1	U	1.	ug/kg	83		70-120		
Bromomethane	2	U	2.	ug/kg	90		32-162		
2-Butanone	4	U	4.	ug/kg	106		46-153		
n-Butylbenzene	1	U	1.	ug/kg	100		72-120		
sec-Butylbenzene	1	U	1.	ug/kg	104		75-120		
tert-Butylbenzene	1	U	1.	ug/kg	100		75-120		
Carbon Disulfide	1	U	1.	ug/kg	99		67-122		
Carbon Tetrachloride	1	U	1.	ug/kg	85		69-122		
Chlorobenzene	1	U	1.	ug/kg	97		80-120		
Chloroethane	2	U	2.	ug/kg	87		37-154		
Chloroform	1	U	1.	ug/kg	95		80-120		
Chloromethane	2	U	2.	ug/kg	86		54-132		

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280701
Reported: 12/30/11 at 03:36 PM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
2-Chlorotoluene	1	U	1.	ug/kg	99		78-120		
4-Chlorotoluene	1	U	1.	ug/kg	99		79-120		
Cyclohexane	1	U	1.	ug/kg	97		62-121		
1,2-Dibromo-3-chloropropane	2	U	2.	ug/kg	94		58-120		
Dibromochloromethane	1	U	1.	ug/kg	90		77-120		
1,2-Dibromoethane	1	U	1.	ug/kg	96		80-120		
Dibromomethane	1	U	1.	ug/kg	88		80-120		
1,2-Dichlorobenzene	1	U	1.	ug/kg	99		79-120		
1,3-Dichlorobenzene	1	U	1.	ug/kg	99		78-120		
1,4-Dichlorobenzene	1	U	1.	ug/kg	98		79-120		
Dichlorodifluoromethane	2	U	2.	ug/kg	82		20-120		
1,1-Dichloroethane	1	U	1.	ug/kg	100		80-120		
1,2-Dichloroethane	1	U	1.	ug/kg	103		71-129		
1,1-Dichloroethene	1	U	1.	ug/kg	91		73-123		
cis-1,2-Dichloroethene	1	U	1.	ug/kg	89		80-120		
trans-1,2-Dichloroethene	1	U	1.	ug/kg	92		79-120		
1,2-Dichloropropane	1	U	1.	ug/kg	92		80-120		
1,3-Dichloropropane	1	U	1.	ug/kg	99		80-120		
2,2-Dichloropropane	1	U	1.	ug/kg	71*		72-123		
1,1-Dichloropropene	1	U	1.	ug/kg	94		77-120		
cis-1,3-Dichloropropene	1	U	1.	ug/kg	80		80-120		
trans-1,3-Dichloropropene	1	U	1.	ug/kg	85		77-120		
Ethylbenzene	1	U	1.	ug/kg	102		80-120		
Freon 113	2	U	2.	ug/kg	93		61-126		
Hexachlorobutadiene	2	U	2.	ug/kg	100		57-120		
2-Hexanone	3	U	3.	ug/kg	94		45-155		
Isopropylbenzene	1	U	1.	ug/kg	102		76-120		
p-Isopropyltoluene	1	U	1.	ug/kg	102		75-120		
Methyl Acetate	2	U	2.	ug/kg	111		61-152		
Methyl Tertiary Butyl Ether	0.5	U	0.5	ug/kg	95		74-121		
4-Methyl-2-pentanone	3	U	3.	ug/kg	102		61-134		
Methylcyclohexane	1	U	1.	ug/kg	92		57-138		
Methylene Chloride	2	U	2.	ug/kg	91		76-124		
Naphthalene	1	U	1.	ug/kg	95		59-123		
n-Propylbenzene	1	U	1.	ug/kg	104		77-120		
Styrene	1	U	1.	ug/kg	102		76-120		
1,1,1,2-Tetrachloroethane	1	U	1.	ug/kg	95		80-120		
1,1,2,2-Tetrachloroethane	1	U	1.	ug/kg	94		71-123		
Tetrachloroethene	1	U	1.	ug/kg	100		77-120		
Toluene	1	U	1.	ug/kg	98		80-120		
1,2,3-Trichlorobenzene	1	U	1.	ug/kg	100		64-120		
1,2,4-Trichlorobenzene	1	U	1.	ug/kg	96		68-120		
1,1,1-Trichloroethane	1	U	1.	ug/kg	87		71-125		
1,1,2-Trichloroethane	1	U	1.	ug/kg	96		80-120		
Trichloroethene	1	U	1.	ug/kg	89		80-120		
Trichlorofluoromethane	2	U	2.	ug/kg	100		58-133		
1,2,3-Trichloropropane	1	U	1.	ug/kg	93		71-123		
1,2,4-Trimethylbenzene	1	U	1.	ug/kg	102		79-120		
1,3,5-Trimethylbenzene	1	U	1.	ug/kg	103		78-120		
Vinyl Acetate	2	U	2.	ug/kg	95		56-137		
Vinyl Chloride	1	U	1.	ug/kg	85		53-120		
m+p-Xylene	1	U	1.	ug/kg	98		80-120		
o-Xylene	1	U	1.	ug/kg	97		80-120		
Batch number: L113541AA	Sample number(s): 6497543								
Acetone	6	U	6.	ug/l	126		49-234		
Benzene	0.5	U	0.5	ug/l	102		79-120		
Bromobenzene	1	U	1.	ug/l	96		80-120		

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(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280701
Reported: 12/30/11 at 03:36 PM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Bromochloromethane	1	U	1.	ug/l	92		80-120		
Bromodichloromethane	1	U	1.	ug/l	89		80-120		
Bromoform	1	U	1.	ug/l	80		61-120		
Bromomethane	1	U	1.	ug/l	85		44-120		
2-Butanone	3	U	3.	ug/l	112		66-151		
n-Butylbenzene	1	U	1.	ug/l	97		74-120		
sec-Butylbenzene	1	U	1.	ug/l	95		78-120		
tert-Butylbenzene	1	U	1.	ug/l	93		80-120		
Carbon Disulfide	1	U	1.	ug/l	96		62-120		
Carbon Tetrachloride	1	U	1.	ug/l	89		75-123		
Chlorobenzene	0.8	U	0.8	ug/l	99		80-120		
Chloroethane	1	U	1.	ug/l	84		49-129		
Chloroform	0.8	U	0.8	ug/l	96		77-122		
Chloromethane	1	U	1.	ug/l	84		60-129		
2-Chlorotoluene	1	U	1.	ug/l	99		80-120		
4-Chlorotoluene	1	U	1.	ug/l	99		80-120		
Cyclohexane	2	U	2.	ug/l	101		65-125		
1,2-Dibromo-3-chloropropane	2	U	2.	ug/l	82		56-126		
Dibromochloromethane	1	U	1.	ug/l	86		80-120		
1,2-Dibromoethane	1	U	1.	ug/l	99		80-120		
Dibromomethane	1	U	1.	ug/l	96		80-120		
1,2-Dichlorobenzene	1	U	1.	ug/l	95		80-120		
1,3-Dichlorobenzene	1	U	1.	ug/l	96		80-120		
1,4-Dichlorobenzene	1	U	1.	ug/l	97		80-120		
Dichlorodifluoromethane	2	U	2.	ug/l	84		47-120		
1,1-Dichloroethane	1	U	1.	ug/l	99		79-120		
1,2-Dichloroethane	1	U	1.	ug/l	96		70-130		
1,1-Dichloroethene	0.8	U	0.8	ug/l	104		74-123		
cis-1,2-Dichloroethene	0.8	U	0.8	ug/l	98		80-120		
trans-1,2-Dichloroethene	0.8	U	0.8	ug/l	100		80-120		
1,2-Dichloropropane	1	U	1.	ug/l	100		78-120		
1,3-Dichloropropane	1	U	1.	ug/l	100		80-120		
2,2-Dichloropropane	1	U	1.	ug/l	82		77-124		
1,1-Dichloropropene	1	U	1.	ug/l	100		80-120		
cis-1,3-Dichloropropene	1	U	1.	ug/l	92		80-120		
trans-1,3-Dichloropropene	1	U	1.	ug/l	89		79-120		
Ethylbenzene	0.8	U	0.8	ug/l	97		79-120		
Freon 113	2	U	2.	ug/l	110		69-128		
Hexachlorobutadiene	2	U	2.	ug/l	90		58-120		
2-Hexanone	3	U	3.	ug/l	109		65-136		
Isopropylbenzene	1	U	1.	ug/l	93		77-120		
p-Isopropyltoluene	1	U	1.	ug/l	93		80-120		
Methyl Acetate	1	U	1.	ug/l	115		64-151		
Methyl Tertiary Butyl Ether	0.5	U	0.5	ug/l	95		76-120		
4-Methyl-2-pentanone	3	U	3.	ug/l	98		70-121		
Methylcyclohexane	1	U	1.	ug/l	98		71-132		
Methylene Chloride	2	U	2.	ug/l	102		80-120		
Naphthalene	1	U	1.	ug/l	91		62-120		
n-Propylbenzene	1	U	1.	ug/l	99		80-120		
Styrene	1	U	1.	ug/l	92		80-120		
1,1,1,2-Tetrachloroethane	1	U	1.	ug/l	90		80-120		
1,1,2,2-Tetrachloroethane	1	U	1.	ug/l	101		71-120		
Tetrachloroethene	0.8	U	0.8	ug/l	96		80-121		
Toluene	0.7	U	0.7	ug/l	98		79-120		
1,2,3-Trichlorobenzene	1	U	1.	ug/l	92		65-120		
1,2,4-Trichlorobenzene	1	U	1.	ug/l	90		67-120		
1,1,1-Trichloroethane	0.8	U	0.8	ug/l	90		75-127		
1,1,2-Trichloroethane	0.8	U	0.8	ug/l	100		80-120		

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280701
Reported: 12/30/11 at 03:36 PM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Trichloroethene	1	U	1.	ug/l	98		80-120		
Trichlorofluoromethane	2	U	2.	ug/l	101		64-129		
1,2,3-Trichloropropane	1	U	1.	ug/l	98		80-120		
1,2,4-Trimethylbenzene	1	U	1.	ug/l	95		74-120		
1,3,5-Trimethylbenzene	1	U	1.	ug/l	95		75-120		
Vinyl Acetate	2	U	2.	ug/l	111	112	57-147	1	30
Vinyl Chloride	1	U	1.	ug/l	90		65-125		
m+p-Xylene	0.8	U	0.8	ug/l	95		80-120		
o-Xylene	0.8	U	0.8	ug/l	92		80-120		
Batch number: 11348SLB026	Sample number(s): 6497534-6497539,6497542								
Acenaphthene	3	U	3.	ug/kg	83		83-111		
Acenaphthylene	3	U	3.	ug/kg	93		68-120		
Anthracene	3	U	3.	ug/kg	86		83-111		
Benzo(a)anthracene	3	U	3.	ug/kg	83		82-111		
Benzo(a)pyrene	3	U	3.	ug/kg	89		63-138		
Benzo(b)fluoranthene	3	U	3.	ug/kg	93		61-133		
Benzo(g,h,i)perylene	3	U	3.	ug/kg	81		63-130		
Benzo(k)fluoranthene	3	U	3.	ug/kg	85		71-135		
Benzyl alcohol	170	U	170.	ug/kg	84		68-111		
1,1'-Biphenyl	17	U	17.	ug/kg	81*		82-106		
4-Bromophenyl-phenylether	17	U	17.	ug/kg	87		79-117		
Butylbenzylphthalate	67	U	67.	ug/kg	85		77-125		
Di-n-butylphthalate	67	U	67.	ug/kg	87		79-112		
Carbazole	17	U	17.	ug/kg	85		83-111		
4-Chloro-3-methylphenol	17	U	17.	ug/kg	85		74-119		
4-Chloroaniline	17	U	17.	ug/kg	35		10-97		
bis(2-Chloroethoxy)methane	17	U	17.	ug/kg	82		82-113		
bis(2-Chloroethyl)ether	17	U	17.	ug/kg	79		77-115		
2-Chloronaphthalene	7	U	7.	ug/kg	94		50-117		
2-Chlorophenol	17	U	17.	ug/kg	88		83-119		
4-Chlorophenyl-phenylether	17	U	17.	ug/kg	88		79-110		
Chrysene	3	U	3.	ug/kg	83		81-111		
Dibenz(a,h)anthracene	3	U	3.	ug/kg	85		67-129		
Dibenzofuran	17	U	17.	ug/kg	82*		85-110		
3,3'-Dichlorobenzidine	100	U	100.	ug/kg	41		17-116		
2,4-Dichlorophenol	17	U	17.	ug/kg	92		87-117		
Diethylphthalate	67	U	67.	ug/kg	86		82-113		
2,4-Dimethylphenol	17	U	17.	ug/kg	85		83-120		
Dimethylphthalate	67	U	67.	ug/kg	86		85-111		
4,6-Dinitro-2-methylphenol	170	U	170.	ug/kg	86		60-113		
2,4-Dinitrophenol	330	U	330.	ug/kg	75		39-126		
2,4-Dinitrotoluene	67	U	67.	ug/kg	91		80-116		
2,6-Dinitrotoluene	17	U	17.	ug/kg	92		79-115		
1,4-Dioxane	100	U	100.	ug/kg	49		38-75		
bis(2-Ethylhexyl)phthalate	67	U	67.	ug/kg	87		75-124		
Fluoranthene	3	U	3.	ug/kg	87		80-113		
Fluorene	3	U	3.	ug/kg	87		81-117		
Hexachlorobenzene	3	U	3.	ug/kg	88		79-115		
Hexachlorocyclopentadiene	170	U	170.	ug/kg	96		64-127		
Hexachloroethane	33	U	33.	ug/kg	80		76-109		
Indeno(1,2,3-cd)pyrene	3	U	3.	ug/kg	84		64-128		
Isophorone	17	U	17.	ug/kg	79		72-107		
2-Methylnaphthalene	3	U	3.	ug/kg	85		79-110		
2-Methylphenol	17	U	17.	ug/kg	84		80-119		
4-Methylphenol	17	U	17.	ug/kg	80		74-116		
2-Nitroaniline	17	U	17.	ug/kg	92		83-118		
3-Nitroaniline	67	U	67.	ug/kg	83		66-114		

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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280701
Reported: 12/30/11 at 03:36 PM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
4-Nitroaniline	67	U	67.	ug/kg	64		52-92		
Nitrobenzene	17	U	17.	ug/kg	82		78-122		
2-Nitrophenol	17	U	17.	ug/kg	90		81-114		
4-Nitrophenol	170	U	170.	ug/kg	75		57-131		
N-Nitroso-di-n-propylamine	17	U	17.	ug/kg	73		70-113		
N-Nitrosodiphenylamine	17	U	17.	ug/kg	88		86-112		
Di-n-octylphthalate	67	U	67.	ug/kg	97		65-141		
Pentachlorophenol	33	U	33.	ug/kg	88		50-133		
Phenanthrene	3	U	3.	ug/kg	82*		83-109		
Phenol	17	U	17.	ug/kg	77		74-115		
Pyrene	3	U	3.	ug/kg	83		80-121		
2,4,5-Trichlorophenol	17	U	17.	ug/kg	92		84-109		
2,4,6-Trichlorophenol	17	U	17.	ug/kg	91		88-114		
Batch number: 11353SLC026	Sample number(s): 6497540-6497541								
Acenaphthene	3	U	3.	ug/kg	92		83-111		
Acenaphthylene	3	U	3.	ug/kg	105		68-120		
Anthracene	3	U	3.	ug/kg	97		83-111		
Benzo(a)anthracene	3	U	3.	ug/kg	90		82-111		
Benzo(a)pyrene	3	U	3.	ug/kg	100		63-138		
Benzo(b)fluoranthene	3	U	3.	ug/kg	105		61-133		
Benzo(g,h,i)perylene	3	U	3.	ug/kg	96		63-130		
Benzo(k)fluoranthene	3	U	3.	ug/kg	96		71-135		
Benzyl alcohol	170	U	170.	ug/kg	93		68-111		
1,1'-Biphenyl	17	U	17.	ug/kg	93		82-106		
4-Bromophenyl-phenylether	17	U	17.	ug/kg	90		79-117		
Butylbenzylphthalate	67	U	67.	ug/kg	92		77-125		
Di-n-butylphthalate	67	U	67.	ug/kg	99		79-112		
Carbazole	17	U	17.	ug/kg	95		83-111		
4-Chloro-3-methylphenol	17	U	17.	ug/kg	90		74-119		
4-Chloroaniline	17	U	17.	ug/kg	38		10-97		
bis(2-Chloroethoxy)methane	17	U	17.	ug/kg	90		82-113		
bis(2-Chloroethyl)ether	17	U	17.	ug/kg	93		77-115		
2-Chloronaphthalene	7	U	7.	ug/kg	92		50-117		
2-Chlorophenol	17	U	17.	ug/kg	96		83-119		
4-Chlorophenyl-phenylether	17	U	17.	ug/kg	92		79-110		
Chrysene	3	U	3.	ug/kg	88		81-111		
Dibenz(a,h)anthracene	3	U	3.	ug/kg	93		67-129		
Dibenzofuran	17	U	17.	ug/kg	91		85-110		
3,3'-Dichlorobenzidine	100	U	100.	ug/kg	43		17-116		
2,4-Dichlorophenol	17	U	17.	ug/kg	92		87-117		
Diethylphthalate	67	U	67.	ug/kg	95		82-113		
2,4-Dimethylphenol	17	U	17.	ug/kg	95		83-120		
Dimethylphthalate	67	U	67.	ug/kg	95		85-111		
4,6-Dinitro-2-methylphenol	170	U	170.	ug/kg	91		60-113		
2,4-Dinitrophenol	330	U	330.	ug/kg	77		39-126		
2,4-Dinitrotoluene	67	U	67.	ug/kg	94		80-116		
2,6-Dinitrotoluene	17	U	17.	ug/kg	101		79-115		
1,4-Dioxane	100	U	100.	ug/kg	54		38-75		
bis(2-Ethylhexyl)phthalate	67	U	67.	ug/kg	90		75-124		
Fluoranthene	3	U	3.	ug/kg	100		80-113		
Fluorene	3	U	3.	ug/kg	96		81-117		
Hexachlorobenzene	3	U	3.	ug/kg	94		79-115		
Hexachlorocyclopentadiene	170	U	170.	ug/kg	81		64-127		
Hexachloroethane	33	U	33.	ug/kg	94		76-109		
Indeno(1,2,3-cd)pyrene	3	U	3.	ug/kg	95		64-128		
Isophorone	17	U	17.	ug/kg	91		72-107		
2-Methylnaphthalene	3	U	3.	ug/kg	89		79-110		

*- Outside of specification
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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280701
Reported: 12/30/11 at 03:36 PM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
2-Methylphenol	17	U	17.	ug/kg	95		80-119		
4-Methylphenol	17	U	17.	ug/kg	87		74-116		
2-Nitroaniline	17	U	17.	ug/kg	95		83-118		
3-Nitroaniline	67	U	67.	ug/kg	88		66-114		
4-Nitroaniline	67	U	67.	ug/kg	67		52-92		
Nitrobenzene	17	U	17.	ug/kg	95		78-122		
2-Nitrophenol	17	U	17.	ug/kg	89		81-114		
4-Nitrophenol	170	U	170.	ug/kg	89		57-131		
N-Nitroso-di-n-propylamine	17	U	17.	ug/kg	87		70-113		
N-Nitrosodiphenylamine	17	U	17.	ug/kg	96		86-112		
Di-n-octylphthalate	67	U	67.	ug/kg	101		65-141		
Pentachlorophenol	33	U	33.	ug/kg	91		50-133		
Phenanthrene	3	U	3.	ug/kg	95		83-109		
Phenol	17	U	17.	ug/kg	93		74-115		
Pyrene	3	U	3.	ug/kg	93		80-121		
2,4,5-Trichlorophenol	17	U	17.	ug/kg	97		84-109		
2,4,6-Trichlorophenol	17	U	17.	ug/kg	94		88-114		
Batch number: 113471026002A	Sample number(s): 6497537-6497542								
Arsenic	0.0813	J	0.0769	mg/kg	105		83-111		
Batch number: 113475708001	Sample number(s): 6497537-6497542								
Barium	0.0178	U	0.0178	mg/kg	98		89-112		
Cadmium	0.0198	U	0.0198	mg/kg	96		88-117		
Chromium	0.139	U	0.139	mg/kg	98		80-111		
Lead	0.218	U	0.218	mg/kg	100		90-115		
Selenium	0.673	U	0.673	mg/kg	97		83-111		
Silver	0.0822	U	0.0822	mg/kg	98		86-112		
Batch number: 113475711001	Sample number(s): 6497537-6497542								
Mercury	0.0066	U	0.0066	mg/kg	93		83-119		
Batch number: 113481026002A	Sample number(s): 6497534-6497536								
Arsenic	0.0777	U	0.0777	mg/kg	96		83-111		
Batch number: 113485708002	Sample number(s): 6497534-6497536								
Barium	0.0176	U	0.0176	mg/kg	94		89-112		
Cadmium	0.0196	U	0.0196	mg/kg	93		88-117		
Chromium	0.137	U	0.137	mg/kg	94		80-111		
Lead	0.216	U	0.216	mg/kg	94		90-115		
Selenium	0.926	J	0.667	mg/kg	93		83-111		
Silver	0.0814	U	0.0814	mg/kg	92		86-112		
Batch number: 113485711003	Sample number(s): 6497534-6497536								
Mercury	0.0066	U	0.0066	mg/kg	97		83-119		
Batch number: 11350820006A	Sample number(s): 6497534-6497542								
Moisture					100		99-101		

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

MS	MSD	MS/MSD	RPD	BKG	DUP	DUP	Dup RPD

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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280701

Reported: 12/30/11 at 03:36 PM

Analysis Name	%REC	%REC	Limits	RPD	MAX	Conc	Conc	RPD	Max
Batch number: A113561AA	Sample number(s): 6497536,6497540-6497542 UNSPK: P499056								
Acetone	120	102	31-195	10	30				
Benzene	92	95	55-143	2	30				
Bromobenzene	84	85	43-139	1	30				
Bromochloromethane	84	91	60-137	6	30				
Bromodichloromethane	84	86	53-136	0	30				
Bromoform	82	81	38-124	2	30				
Bromomethane	95	99	42-168	2	30				
2-Butanone	140	123	37-163	13	30				
n-Butylbenzene	73	81	30-146	9	30				
sec-Butylbenzene	79	89	33-157	11	30				
tert-Butylbenzene	78	87	41-152	9	30				
Carbon Disulfide	73	84	48-146	12	30				
Carbon Tetrachloride	87	97	45-153	10	30				
Chlorobenzene	84	87	49-135	3	30				
Chloroethane	80	90	39-152	10	30				
Chloroform	90	95	61-142	4	30				
Chloromethane	93	86	51-163	9	30				
2-Chlorotoluene	80	85	42-146	5	30				
4-Chlorotoluene	81	83	39-145	0	30				
Cyclohexane	87	104	57-151	17	30				
1,2-Dibromo-3-chloropropane	97	100	30-139	2	30				
Dibromochloromethane	84	84	51-128	1	30				
1,2-Dibromoethane	92	95	54-129	1	30				
Dibromomethane	88	88	57-130	2	30				
1,2-Dichlorobenzene	73	79	36-133	6	30				
1,3-Dichlorobenzene	77	81	34-134	4	30				
1,4-Dichlorobenzene	76	78	35-136	2	30				
Dichlorodifluoromethane	89	88	26-151	3	30				
1,1-Dichloroethane	92	99	63-142	6	30				
1,2-Dichloroethane	108	107	68-131	2	30				
1,1-Dichloroethene	84	93	61-149	9	30				
cis-1,2-Dichloroethene	80	88	60-136	8	30				
trans-1,2-Dichloroethene	79	91	59-142	12	30				
1,2-Dichloropropane	89	88	62-135	3	30				
1,3-Dichloropropane	96	94	58-129	3	30				
2,2-Dichloropropane	89	94	53-147	4	30				
1,1-Dichloropropene	90	101	54-145	10	30				
cis-1,3-Dichloropropene	80	80	51-131	1	30				
trans-1,3-Dichloropropene	83	85	49-129	1	30				
Ethylbenzene	88	93	44-141	3	30				
Freon 113	91	98	56-156	7	30				
Hexachlorobutadiene	63	76	10-155	18	30				
2-Hexanone	115	109	32-160	7	30				
Isopropylbenzene	82	93	38-144	11	30				
p-Isopropyltoluene	76	85	29-152	11	30				
Methyl Acetate	142	135	48-161	6	30				
Methyl Tertiary Butyl Ether	94	96	55-129	0	30				
4-Methyl-2-pentanone	130	120	46-139	9	30				
Methylcyclohexane	78	99	39-168	22	30				
Methylene Chloride	80	87	61-141	7	30				
Naphthalene	63	76	10-138	19	30				
n-Propylbenzene	85	91	39-157	6	30				
Styrene	85	77	35-134	11	30				
1,1,1,2-Tetrachloroethane	82	87	52-130	4	30				
1,1,2,2-Tetrachloroethane	93	93	40-152	2	30				
Tetrachloroethene	87	97	42-149	9	30				
Toluene	91	92	50-146	0	30				

*- Outside of specification

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280701
Reported: 12/30/11 at 03:36 PM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
1,2,3-Trichlorobenzene	61	71	10-140	14	30				
1,2,4-Trichlorobenzene	57	68	10-136	16	30				
1,1,1-Trichloroethane	90	99	64-142	8	30				
1,1,2-Trichloroethane	92	93	54-139	1	30				
Trichloroethene	83	89	53-144	6	30				
Trichlorofluoromethane	114	115	47-163	0	30				
1,2,3-Trichloropropane	99	98	45-154	3	30				
1,2,4-Trimethylbenzene	76	85	37-149	10	30				
1,3,5-Trimethylbenzene	83	90	38-150	8	30				
Vinyl Chloride	85	88	50-154	3	30				
m+p-Xylene	84	88	44-137	4	30				
o-Xylene	81	86	42-137	6	30				
Batch number: A113562AA	Sample number(s): 6497540 UNSPK: P504145								
Acetone	123	124	31-195	1	30				
Benzene	70	66	55-143	4	30				
Bromobenzene	39*	38*	43-139	2	30				
Bromochloromethane	76	77	60-137	2	30				
Bromodichloromethane	63	60	53-136	3	30				
Bromoform	54	56	38-124	4	30				
Bromomethane	76	73	42-168	4	30				
2-Butanone	125	132	37-163	6	30				
n-Butylbenzene	16*	12*	30-146	29	30				
sec-Butylbenzene	23*	19*	33-157	21	30				
tert-Butylbenzene	28*	25*	41-152	12	30				
Carbon Disulfide	78	76	48-146	2	30				
Carbon Tetrachloride	70	66	45-153	5	30				
Chlorobenzene	42*	38*	49-135	9	30				
Chloroethane	73	69	39-152	6	30				
Chloroform	78	77	61-142	1	30				
Chloromethane	63	59	51-163	7	30				
2-Chlorotoluene	29*	26*	42-146	10	30				
4-Chlorotoluene	27*	24*	39-145	10	30				
Cyclohexane	82	78	57-151	5	30				
1,2-Dibromo-3-chloropropane	76	80	30-139	6	30				
Dibromochloromethane	61	60	51-128	0	30				
1,2-Dibromoethane	70	71	54-129	2	30				
Dibromomethane	70	70	57-130	1	30				
1,2-Dichlorobenzene	31*	30*	36-133	2	30				
1,3-Dichlorobenzene	26*	24*	34-134	7	30				
1,4-Dichlorobenzene	27*	25*	35-136	7	30				
Dichlorodifluoromethane	55	55	26-151	0	30				
1,1-Dichloroethane	85	83	63-142	2	30				
1,2-Dichloroethane	89	88	68-131	0	30				
1,1-Dichloroethene	85	83	61-149	2	30				
cis-1,2-Dichloroethene	72	71	60-136	1	30				
trans-1,2-Dichloroethene	74	72	59-142	3	30				
1,2-Dichloropropane	68	66	62-135	3	30				
1,3-Dichloropropane	73	75	58-129	3	30				
2,2-Dichloropropane	70	69	53-147	0	30				
1,1-Dichloropropene	71	66	54-145	6	30				
cis-1,3-Dichloropropene	51	48*	51-131	5	30				
trans-1,3-Dichloropropene	55	54	49-129	1	30				

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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280701
Reported: 12/30/11 at 03:36 PM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Ethylbenzene	38*	33*	44-141	15	30				
Freon 113	94	93	56-156	1	30				
Hexachlorobutadiene	15	11	10-155	25	30				
2-Hexanone	101	114	32-160	12	30				
Isopropylbenzene	31*	25*	38-144	19	30				
p-Isopropyltoluene	20*	15*	29-152	26	30				
Methyl Acetate	124	131	48-161	6	30				
Methyl Tertiary Butyl Ether	92	94	55-129	3	30				
4-Methyl-2-pentanone	111	116	46-139	5	30				
Methylcyclohexane	74	70	39-168	5	30				
Methylene Chloride	82	80	61-141	1	30				
Naphthalene	34	36	10-138	5	30				
n-Propylbenzene	27*	23*	39-157	17	30				
Styrene	34*	31*	35-134	10	30				
1,1,1,2-Tetrachloroethane	51*	48*	52-130	5	30				
1,1,2,2-Tetrachloroethane	76	82	40-152	8	30				
Tetrachloroethene	49	43	42-149	12	30				
Toluene	54	51	50-146	6	30				
1,2,3-Trichlorobenzene	25	24	10-140	4	30				
1,2,4-Trichlorobenzene	20	19	10-136	5	30				
1,1,1-Trichloroethane	74	71	64-142	4	30				
1,1,2-Trichloroethane	75	78	54-139	3	30				
Trichloroethene	58	53	53-144	8	30				
Trichlorofluoromethane	92	89	47-163	3	30				
1,2,3-Trichloropropane	82	91	45-154	11	30				
1,2,4-Trimethylbenzene	25*	21*	37-149	15	30				
1,3,5-Trimethylbenzene	27*	23*	38-150	18	30				
Vinyl Acetate	78	79	21-139	4	30				
Vinyl Chloride	64	60	50-154	5	30				
m+p-Xylene	35*	29*	44-137	19	30				
o-Xylene	34*	30*	42-137	13	30				
Batch number: L113541AA	Sample number(s): 6497543 UNSPK: P499186								
Acetone	97	94	52-139	3	30				
Benzene	108	105	80-126	2	30				
Bromobenzene	103	99	82-115	4	30				
Bromochloromethane	98	93	83-123	4	30				
Bromodichloromethane	93	89	78-125	5	30				
Bromoform	76	72	60-121	5	30				
Bromomethane	92	92	38-149	0	30				
2-Butanone	105	103	57-138	2	30				
n-Butylbenzene	102	101	73-128	1	30				
sec-Butylbenzene	103	99	79-125	3	30				
tert-Butylbenzene	99	97	81-121	2	30				
Carbon Disulfide	95	95	67-135	1	30				
Carbon Tetrachloride	96	93	81-138	3	30				
Chlorobenzene	105	101	87-124	4	30				
Chloroethane	86	86	51-145	0	30				
Chloroform	102	99	81-134	3	30				
Chloromethane	88	88	67-154	0	30				
2-Chlorotoluene	103	101	82-118	2	30				
4-Chlorotoluene	105	102	84-122	3	30				
Cyclohexane	105	105	75-156	0	30				

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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280701
Reported: 12/30/11 at 03:36 PM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
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Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
1,2-Dibromo-3-chloropropane	85	82	54-134	3	30				
Dibromochloromethane	86	83	74-116	4	30				
1,2-Dibromoethane	104	100	77-116	4	30				
Dibromomethane	100	96	83-119	4	30				
1,2-Dichlorobenzene	99	96	84-119	3	30				
1,3-Dichlorobenzene	102	98	86-121	4	30				
1,4-Dichlorobenzene	103	100	85-121	3	30				
Dichlorodifluoromethane	92	92	52-129	0	30				
1,1-Dichloroethane	106	104	84-129	2	30				
1,2-Dichloroethane	101	97	66-141	4	30				
1,1-Dichloroethene	111	111	85-142	0	30				
cis-1,2-Dichloroethene	102	99	85-125	3	30				
trans-1,2-Dichloroethene	106	103	87-126	3	30				
1,2-Dichloropropane	105	100	83-124	4	30				
1,3-Dichloropropane	106	102	81-120	4	30				
2,2-Dichloropropane	88	87	81-135	1	30				
1,1-Dichloropropene	107	104	86-137	2	30				
cis-1,3-Dichloropropene	92	89	75-125	3	30				
trans-1,3-Dichloropropene	92	89	74-119	3	30				
Ethylbenzene	104	102	71-134	2	30				
Freon 113	117	115	89-148	2	30				
Hexachlorobutadiene	95	94	56-134	1	30				
2-Hexanone	103	101	55-127	2	30				
Isopropylbenzene	99	97	75-128	2	30				
p-Isopropyltoluene	99	98	76-123	1	30				
Methyl Acetate	114	118	66-144	4	30				
Methyl Tertiary Butyl Ether	96	92	72-126	4	30				
4-Methyl-2-pentanone	101	99	63-123	2	30				
Methylcyclohexane	106	104	80-156	1	30				
Methylene Chloride	102	102	79-120	0	30				
Naphthalene	93	92	52-125	1	30				
n-Propylbenzene	105	101	74-134	3	30				
Styrene	97	93	78-125	4	30				
1,1,1,2-Tetrachloroethane	93	90	82-119	3	30				
1,1,2,2-Tetrachloroethane	103	101	72-128	2	30				
Tetrachloroethene	105	101	80-128	4	30				
Toluene	104	102	80-125	3	30				
1,2,3-Trichlorobenzene	93	91	69-119	2	30				
1,2,4-Trichlorobenzene	91	90	70-124	1	30				
1,1,1-Trichloroethane	97	96	80-143	0	30				
1,1,2-Trichloroethane	105	101	77-124	4	30				
Trichloroethene	105	103	88-133	2	30				
Trichlorofluoromethane	112	108	73-152	3	30				
1,2,3-Trichloropropane	101	100	76-118	2	30				
1,2,4-Trimethylbenzene	100	98	72-130	3	30				
1,3,5-Trimethylbenzene	99	98	72-131	1	30				
Vinyl Chloride	96	95	66-133	0	30				
m+p-Xylene	102	99	79-125	3	30				
o-Xylene	98	94	79-125	4	30				
Batch number: 11348SLB026	Sample number(s): 6497534-6497539,6497542 UNSPK: 6497534								
Acenaphthene	84	85	41-135	1	30				
Acenaphthylene	93	92	47-137	0	30				

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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280701
Reported: 12/30/11 at 03:36 PM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
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Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Anthracene	86	87	40-147	1	30				
Benzo(a)anthracene	78	79	32-150	1	30				
Benzo(a)pyrene	89	89	57-129	0	30				
Benzo(b)fluoranthene	84	89	53-131	6	30				
Benzo(g,h,i)perylene	85	85	60-123	1	30				
Benzo(k)fluoranthene	90	88	61-131	2	30				
Benzyl alcohol	83	82	63-128	2	30				
1,1'-Biphenyl	81	81	51-127	1	30				
4-Bromophenyl-phenylether	89	88	46-131	1	30				
Butylbenzylphthalate	85	85	26-161	1	30				
Di-n-butylphthalate	87	88	32-139	2	30				
Carbazole	81	82	36-148	1	30				
4-Chloro-3-methylphenol	81	80	33-144	1	30				
4-Chloroaniline	58	61	11-114	4	30				
bis(2-Chloroethoxy)methane	81	79	44-132	2	30				
bis(2-Chloroethyl)ether	79	79	45-139	0	30				
2-Chloronaphthalene	108	110	22-131	2	30				
2-Chlorophenol	85	85	29-151	1	30				
4-Chlorophenyl-phenylether	88	88	42-130	0	30				
Chrysene	80	80	76-114	0	30				
Dibenz(a,h)anthracene	87	88	37-151	1	30				
Dibenzofuran	82	83	38-148	1	30				
3,3'-Dichlorobenzidine	35	41	10-143	17	30				
2,4-Dichlorophenol	87	87	35-142	0	30				
Diethylphthalate	86	87	32-137	2	30				
2,4-Dimethylphenol	65	65	27-143	0	30				
Dimethylphthalate	85	85	26-141	0	30				
4,6-Dinitro-2-methylphenol	87	87	10-148	0	30				
2,4-Dinitrophenol	79	79	20-143	0	30				
2,4-Dinitrotoluene	91	90	27-147	1	30				
2,6-Dinitrotoluene	92	92	44-140	1	30				
1,4-Dioxane	43	48	31-77	11	30				
bis(2-Ethylhexyl)phthalate	85	85	38-151	0	30				
Fluoranthene	85	87	48-122	2	30				
Fluorene	85	85	35-140	0	30				
Hexachlorobenzene	89	89	53-137	1	30				
Hexachlorocyclopentadiene	96	93	10-153	3	30				
Hexachloroethane	79	80	71-104	2	30				
Indeno(1,2,3-cd)pyrene	86	87	61-123	1	30				
Isophorone	79	78	54-122	1	30				
2-Methylnaphthalene	84	84	23-141	0	30				
2-Methylphenol	76	76	30-145	0	30				
4-Methylphenol	72	72	36-149	1	30				
2-Nitroaniline	90	91	46-146	1	30				
3-Nitroaniline	79	78	34-134	1	30				
4-Nitroaniline	73	72	26-124	0	30				
Nitrobenzene	82	82	37-139	0	30				
2-Nitrophenol	90	89	25-151	1	30				
4-Nitrophenol	73	74	15-149	2	30				
N-Nitroso-di-n-propylamine	72	72	46-128	0	30				
N-Nitrosodiphenylamine	79	79	33-148	1	30				
Di-n-octylphthalate	101	102	43-149	1	30				
Pentachlorophenol	84	82	23-145	2	30				

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280701
Reported: 12/30/11 at 03:36 PM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Phenanthrene	82	82	34-147	0	30				
Phenol	74	77	39-151	5	30				
Pyrene	82	83	76-124	1	30				
2,4,5-Trichlorophenol	90	90	25-143	0	30				
2,4,6-Trichlorophenol	87	86	41-142	1	30				
Batch number: 11353SLC026	Sample number(s): 6497540-6497541 UNSPK: P501839								
Acenaphthene	72	44	41-135	49*	30				
Acenaphthylene	77	49	47-137	44*	30				
Anthracene	71	45	40-147	44*	30				
Benzo(a)anthracene	67	44	32-150	41*	30				
Benzo(a)pyrene	73	41*	57-129	57*	30				
Benzo(b)fluoranthene	71	44*	53-131	47*	30				
Benzo(g,h,i)perylene	73	43*	60-123	52*	30				
Benzo(k)fluoranthene	70	44*	61-131	45*	30				
Benzyl alcohol	0*	0*	63-128	0	30				
1,1'-Biphenyl	70	44*	51-127	47*	30				
4-Bromophenyl-phenylether	65	44*	46-131	40*	30				
Butylbenzylphthalate	74	47	26-161	45*	30				
Di-n-butylphthalate	73	45	32-139	48*	30				
Carbazole	72	45	36-148	47*	30				
4-Chloro-3-methylphenol	68	43	33-144	46*	30				
4-Chloroaniline	41	25	11-114	47*	30				
bis(2-Chloroethoxy)methane	68	43*	44-132	45*	30				
bis(2-Chloroethyl)ether	73	46	45-139	46*	30				
2-Chloronaphthalene	84	52	22-131	47*	30				
2-Chlorophenol	72	41	29-151	56*	30				
4-Chlorophenyl-phenylether	68	43	42-130	45*	30				
Chrysene	67*	43*	76-114	45*	30				
Dibenz(a,h)anthracene	70	42	37-151	50*	30				
Dibenzofuran	70	44	38-148	46*	30				
3,3'-Dichlorobenzidine	0*	0*	10-143	0	30				
2,4-Dichlorophenol	66	43	35-142	42*	30				
Diethylphthalate	74	45	32-137	49*	30				
2,4-Dimethylphenol	69	41	27-143	51*	30				
Dimethylphthalate	71	43	26-141	49*	30				
4,6-Dinitro-2-methylphenol	0*	0*	10-148	0	30				
2,4-Dinitrophenol	118	107	20-143	9	30				
2,4-Dinitrotoluene	67	0*	27-147	200*	30				
2,6-Dinitrotoluene	64	40*	44-140	47*	30				
1,4-Dioxane	0*	0*	31-77	0	30				
bis(2-Ethylhexyl)phthalate	72	44	38-151	47*	30				
Fluoranthene	77	47*	48-122	49*	30				
Fluorene	74	47	35-140	44*	30				
Hexachlorobenzene	69	44*	53-137	43*	30				
Hexachlorocyclopentadiene	0*	0*	10-153	0	30				
Hexachloroethane	66*	38*	71-104	54*	30				
Indeno(1,2,3-cd)pyrene	69	40*	61-123	55*	30				
Isophorone	67	44*	54-122	41*	30				
2-Methylnaphthalene	67	44	23-141	41*	30				
2-Methylphenol	78	47	30-145	49*	30				
4-Methylphenol	68	43	36-149	45*	30				
2-Nitroaniline	67	39*	46-146	53*	30				

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280701
Reported: 12/30/11 at 03:36 PM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
3-Nitroaniline	54	0*	34-134	200*	30				
4-Nitroaniline	46	0*	26-124	200*	30				
Nitrobenzene	74	49	37-139	41*	30				
2-Nitrophenol	63	38	25-151	50*	30				
4-Nitrophenol	0*	0*	15-149	0	30				
N-Nitroso-di-n-propylamine	68	42*	46-128	47*	30				
N-Nitrosodiphenylamine	71	44	33-148	48*	30				
Di-n-octylphthalate	77	46	43-149	51*	30				
Pentachlorophenol	156*	131	23-145	18	30				
Phenanthrene	76	45	34-147	51*	30				
Phenol	72	44	39-151	47*	30				
Pyrene	67*	46*	76-124	39*	30				
2,4,5-Trichlorophenol	67	46	25-143	38*	30				
2,4,6-Trichlorophenol	68	41	41-142	50*	30				
Batch number: 113471026002A	Sample number(s): 6497537-6497542 UNSPK: P498238 BKG: P498238								
Arsenic	77	102	75-125	10	20	3.16	1.97	46*	20
Batch number: 113475708001	Sample number(s): 6497537-6497542 UNSPK: P497123 BKG: P497123								
Barium	109	120	75-125	9	20	12.6	28.0	76*	20
Cadmium	97	97	75-125	1	20	0.252 J	0.256 J	2 (1)	20
Chromium	119	117	75-125	2	20	4.94	10.0	68* (1)	20
Lead	184*	281*	75-125	20	20	34.4	82.2	82*	20
Selenium	86	92	75-125	6	20	0.654 U	0.680 U	0 (1)	20
Silver	89	89	75-125	1	20	0.0798 U	0.0830 U	0 (1)	20
Batch number: 113475711001	Sample number(s): 6497537-6497542 UNSPK: P497123 BKG: P497123								
Mercury	473*	293*	80-120	26*	20	0.520	0.485	7	20
Batch number: 113481026002A	Sample number(s): 6497534-6497536 UNSPK: P497514 BKG: P497514								
Arsenic	115 (2)	1 (2)	75-125	21*	20	9.80	11.4	15	20
Batch number: 113485708002	Sample number(s): 6497534-6497536 UNSPK: P497514 BKG: P497514								
Barium	134*	161*	75-125	14	20	110	116	6	20
Cadmium	90	108	75-125	15	20	0.862	0.972	12 (1)	20
Chromium	85	89	75-125	2	20	19.9	20.4	3	20
Lead	74*	137*	75-125	31*	20	14.9	17.6	17	20
Selenium	108	118	75-125	9	20	0.654 U	0.741 J	200* (1)	20
Silver	99	97	75-125	1	20	0.0798 U	0.0814 U	0 (1)	20
Batch number: 113485711003	Sample number(s): 6497534-6497536 UNSPK: P497514 BKG: P497514								
Mercury	105	101	80-120	3	20	0.0112 J	0.0164 J	37* (1)	20
Batch number: 11350820006A	Sample number(s): 6497534-6497542 BKG: P499693								
Moisture						14.3	14.6	2	15

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280701
Reported: 12/30/11 at 03:36 PM

Surrogate Quality Control

Analysis Name: 8260 Ext. Soil Master
Batch number: A113551AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
6497534	106	100	98	92
6497535	106	102	99	92
6497537	106	103	100	92
6497538	109	102	99	93
6497539	110	104	98	94
Blank	103	101	100	94
LCS	104	102	102	97
LCSD	104	99	102	96
Limits:	71-114	70-109	70-123	70-111

Analysis Name: 8260 Ext. Soil Master
Batch number: A113561AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
6497536	101	105	101	95
6497540	99	103	119	75
6497541	100	100	101	95
6497542	102	104	101	95
Blank	100	100	101	95
LCS	100	101	103	99
MS	98	102	105	98
MSD	100	102	104	98
Limits:	71-114	70-109	70-123	70-111

Analysis Name: 8260 Ext. Soil Master
Batch number: A113562AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
6497540 RE	95	101	121	73
Blank	98	97	103	94
LCS	98	98	106	98
MS	99	98	109	95
MSD	99	98	110	94
Limits:	71-114	70-109	70-123	70-111

Analysis Name: 8260 Ext. Water Master
Batch number: L113541AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
6497543	94	98	98	92
Blank	95	99	98	93
LCS	94	98	99	96
MS	95	97	99	97
MSD	96	98	100	97
Limits:	80-116	77-113	80-113	78-113

Analysis Name: TCL 8270 (microwave)

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280701
Reported: 12/30/11 at 03:36 PM

Surrogate Quality Control

Batch number: 11348SLB026

	Phenol-d6	2-Fluorophenol	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
6497534	76	81	81	76	78	138*
6497535	94	101	91	81	79	100
6497536	79	84	70	76	79	98
6497537	77	83	77	76	79	87
6497538	77	82	78	77	79	115
6497539	76	81	76	74	76	94
6497542	90	96	100	88	90	164*
Blank	87	92	101	85	88	101
LCS	83	87	88	80	80	183*
MS	80	85	82	79	81	123
MSD	80	84	83	81	80	103
Limits:	42-130	39-136	28-139	45-123	56-121	43-124

Analysis Name: TCL 8270 (microwave)
Batch number: 11353SLC026

	Phenol-d6	2-Fluorophenol	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
6497540	88	88	67	84	87	88
6497541	90	95	91	86	91	99
Blank	80	89	85	83	85	94
LCS	93	100	93	88	91	95
MS	77	79	70	69	75	76
MSD	45	44	39	42*	43*	44
Limits:	42-130	39-136	28-139	45-123	56-121	43-124

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Analysis Request/ Environmental Services Chain of Custody

Page 3 of 3

Lancaster Laboratories

For Lancaster Laboratories use only

Acct. # 11372 Group# 1280701 Sample # 6497534-43

COC # 274006

Please print. Instructions on reverse side correspond with circled numbers.

(1) Client: Dow Hanging Rock Acct. #:

Project Name/#: 420671.01.FI PWSID #:

Project Manager: Mark Holland P.O.#: 420671-04

Sampler: Osaguona Ogbebor Quote #:

Name of state where samples were collected:

(2) Sample Identification	Date Collected	Time Collected	(3) Grab	Composite	Matrix: Soil	Water (Potable / NPDES)	Other	(4) Total # of Containers	(5) Analyses Requested: VOCs	SVOCs	Metals	Moisture Content	Remarks
S01-SS09-0305-121211	12/12/11	1550		X	X			4	✓	✓	✓	✓	
S01-SS09-0810-121211	12/12/11	1555		X	X			4	✓	✓	✓	✓	
S01-SS08-0002-121211	12/12/11	1615		X	X			4	✓	✓	✓	✓	
S01-SS08-0305-121211	12/12/11	1620		X	X			4	✓	✓	✓	✓	
S01-SS08-0810-121211	12/12/11	1625		X	X			4	✓	✓	✓	✓	
S01-SS08-2123-121211	12/12/11	1645		X	X			4	✓	✓	✓	✓	
S01-SS07-0002-121211	12/12/11	1700		X	X			4	✓	✓	✓	✓	
S01-SS07-0305-121211	12/12/11	1705		X	X			4	✓	✓	✓	✓	
S01-SS07-0810-121211	12/12/11	1710		X	X			4	✓	✓	✓	✓	
121211 TB	12/01/11	—	X			✓		2					

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate

N=HNO_3 B=NaOH

S=H_2SO_4 O=Other

(6) Temperature of samples upon receipt (if requested)

(7) **Turnaround Time Requested** (TAT) (please circle): Normal Rush

(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)

Date results are needed: N/A

Rush results requested by (please circle): Phone Fax E-mail

Phone #: Fax #:

E-mail address:

(8) **Data Package Options** (please circle if required)

Type I (validation/NJ Reg) TX TRRP-13

Type II (Tier II) MA MCP CT RCP

Type III (Reduced NJ)

Type IV (CLP SOW)

Type VI (Raw Data Only)

SDG Complete? Yes No

Site-specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate volume.)

Internal COC Required? Yes / No

(9)

Relinquished by:	Date	Time	Received by:	Date	Time
Osaguona	12/12/11	1930			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	12/13/11	0935

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

J estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike sample not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*****	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL LANCASTER LABORATORIES BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF LANCASTER LABORATORIES AND (B) WHETHER LANCASTER LABORATORIES HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Lancaster Laboratories which includes any conditions that vary from the Standard Terms and Conditions, and Lancaster hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

ANALYTICAL RESULTS

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425

Prepared for:

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

December 27, 2011

Project: Dow Hanging Rock, OH

Submittal Date: 12/14/2011
Group Number: 1280964
SDG: DHR08
PO Number: 420671-04
Release Number: DHR08
State of Sample Origin: OH

Client Sample Description	Lancaster Labs (LLI) #
HGR-121311-EB01 Grab Water Sample	6499033
S11-SS04-0002-121311 Composite Soil Sample	6499034
S11-SS04-0305-121311 Composite Soil Sample	6499035
S11-SS04-0305-121311MS Composite Soil Sample	6499036
S11-SS04-0305-121311MSD Composite Soil Sample	6499037
S11-SS04-0305-121311DUP Composite Soil Sample	6499038
S11-SS04-0810-121311 Composite Soil Sample	6499039
S11-SS03-0002-121311 Composite Soil Sample	6499040
S11-SS03-0305-121311 Composite Soil Sample	6499041
S11-SS03-0810-121311 Composite Soil Sample	6499042
S11-SS02-0002-121311 Composite Soil Sample	6499043
HGR-121311-FD01 Composite Soil Sample	6499044
S11-SS02-0305-121311 Composite Soil Sample	6499045
S11-SS02-0810-121311 Composite Soil Sample	6499046
S11-SS01-0002-121311 Composite Soil Sample	6499047
S11-SS01-0308-121311 Composite Soil Sample	6499048
S11-SS01-0810-121311 Composite Soil Sample	6499049
S11-SS05-0002-121311 Composite Soil Sample	6499050
S11-SS05-0305-121311 Composite Soil Sample	6499051
S11-SS05-0810-121311 Composite Soil Sample	6499052

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Lancaster Laboratories

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Analysis Report

ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Shane Lowe
ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Rachel Grand
1 COPY TO	Data Package Group	

Questions? Contact your Client Services Representative
Wendy A Kozma at (717) 656-2300 Ext. 1522

Respectfully Submitted,

Lawrence M. Taylor
Senior Specialist

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Sample Description: HGR-121311-EB01 Grab Water Sample
Dow Hanging Rock, OH

LLI Sample # WW 6499033
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 12:30 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HGRE- SDG#: DHR08-01EB

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		ug/l		ug/l	
04678	Acenaphthene	83-32-9	0.1	U	0.1	1
04678	Acenaphthylene	208-96-8	0.1	U	0.1	1
04678	Anthracene	120-12-7	0.1	U	0.1	1
04678	Benzo(a)anthracene	56-55-3	0.1	U	0.1	1
04678	Benzo(a)pyrene	50-32-8	0.1	U	0.1	1
04678	Benzo(b)fluoranthene	205-99-2	0.1	U	0.1	1
04678	Benzo(g,h,i)perylene	191-24-2	0.1	U	0.1	1
04678	Benzo(k)fluoranthene	207-08-9	0.1	U	0.1	1
04678	Benzyl alcohol	100-51-6	5	U	5	1
04678	1,1'-Biphenyl	92-52-4	0.5	U	0.5	1
04678	4-Bromophenyl-phenylether	101-55-3	0.5	U	0.5	1
04678	Butylbenzylphthalate	85-68-7	2	U	2	1
04678	Di-n-butylphthalate	84-74-2	2	U	2	1
04678	Carbazole	86-74-8	0.5	U	0.5	1
04678	4-Chloro-3-methylphenol	59-50-7	0.5	U	0.5	1
04678	4-Chloroaniline	106-47-8	0.5	U	0.5	1
04678	bis(2-Chloroethoxy)methane	111-91-1	0.5	U	0.5	1
04678	bis(2-Chloroethyl)ether	111-44-4	0.5	U	0.5	1
04678	2-Chloronaphthalene	91-58-7	0.4	U	0.4	1
04678	2-Chlorophenol	95-57-8	0.5	U	0.5	1
04678	4-Chlorophenyl-phenylether	7005-72-3	0.5	U	0.5	1
04678	Chrysene	218-01-9	0.1	U	0.1	1
04678	Dibenz(a,h)anthracene	53-70-3	0.1	U	0.1	1
04678	Dibenzofuran	132-64-9	0.5	U	0.5	1
04678	3,3'-Dichlorobenzidine	91-94-1	2	U	2	1
04678	2,4-Dichlorophenol	120-83-2	0.5	U	0.5	1
04678	Diethylphthalate	84-66-2	2	U	2	1
04678	2,4-Dimethylphenol	105-67-9	0.5	U	0.5	1
04678	Dimethylphthalate	131-11-3	2	U	2	1
04678	4,6-Dinitro-2-methylphenol	534-52-1	5	U	5	1
04678	2,4-Dinitrophenol	51-28-5	10	U	10	1
04678	2,4-Dinitrotoluene	121-14-2	1	U	1	1
04678	2,6-Dinitrotoluene	606-20-2	0.5	U	0.5	1
04678	1,4-Dioxane	123-91-1	1	U	1	1
04678	bis(2-Ethylhexyl)phthalate	117-81-7	2	U	2	1
04678	Fluoranthene	206-44-0	0.1	U	0.1	1
04678	Fluorene	86-73-7	0.1	U	0.1	1
04678	Hexachlorobenzene	118-74-1	0.1	U	0.1	1
04678	Hexachlorocyclopentadiene	77-47-4	5	U	5	1
04678	Hexachloroethane	67-72-1	1	U	1	1
04678	Indeno(1,2,3-cd)pyrene	193-39-5	0.1	U	0.1	1
04678	Isophorone	78-59-1	0.5	U	0.5	1
04678	2-Methylnaphthalene	91-57-6	0.1	U	0.1	1
04678	2-Methylphenol	95-48-7	0.5	U	0.5	1
04678	4-Methylphenol	106-44-5	0.5	U	0.5	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
04678	2-Nitroaniline	88-74-4	0.5	U	0.5	1
04678	3-Nitroaniline	99-09-2	0.5	U	0.5	1
04678	4-Nitroaniline	100-01-6	0.5	U	0.5	1

Sample Description: HGR-121311-EB01 Grab Water Sample
Dow Hanging Rock, OH

LLI Sample # WW 6499033
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 12:30 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HGRE- SDG#: DHR08-01EB

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**		**ug/l**	
04678	Nitrobenzene	98-95-3	0.5	U	0.5	1
04678	2-Nitrophenol	88-75-5	0.5	U	0.5	1
04678	4-Nitrophenol	100-02-7	10	U	10	1
04678	N-Nitroso-di-n-propylamine	621-64-7	0.5	U	0.5	1
04678	N-Nitrosodiphenylamine	86-30-6	0.5	U	0.5	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
04678	Di-n-octylphthalate	117-84-0	2	U	2	1
04678	Pentachlorophenol	87-86-5	1	U	1	1
04678	Phenanthrene	85-01-8	0.1	U	0.1	1
04678	Phenol	108-95-2	0.5	U	0.5	1
04678	Pyrene	129-00-0	0.1	U	0.1	1
04678	2,4,5-Trichlorophenol	95-95-4	0.5	U	0.5	1
04678	2,4,6-Trichlorophenol	88-06-2	0.5	U	0.5	1
Metals	**SW-846 6010B**		**mg/l**		**mg/l**	
07046	Barium	7440-39-3	0.00026	U	0.00026	1
07049	Cadmium	7440-43-9	0.00027	U	0.00027	1
07051	Chromium	7440-47-3	0.0011	U	0.0011	1
07055	Lead	7439-92-1	0.0022	U	0.0022	1
07036	Selenium	7782-49-2	0.0069	U	0.0069	1
07066	Silver	7440-22-4	0.00091	U	0.00091	1
	SW-846 6020		**mg/l**		**mg/l**	
06025	Arsenic	7440-38-2	0.00095	U	0.00095	1
	SW-846 7470A		**mg/l**		**mg/l**	
00259	Mercury	7439-97-6	0.000026	U	0.000026	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	11353WAA026	12/20/2011 19:09	Holly Berry	1
00813	BNA Water Extraction	SW-846 3510C	1	11353WAA026	12/19/2011 22:00	Elaine F Stoltzfus	1
07046	Barium	SW-846 6010B	1	113495705002	12/17/2011 20:13	Tara L Snyder	1
07049	Cadmium	SW-846 6010B	1	113495705002	12/17/2011 20:13	Tara L Snyder	1
07051	Chromium	SW-846 6010B	1	113495705002	12/17/2011 20:13	Tara L Snyder	1
07055	Lead	SW-846 6010B	1	113495705002	12/17/2011 20:13	Tara L Snyder	1
07036	Selenium	SW-846 6010B	1	113495705002	12/17/2011 20:13	Tara L Snyder	1
07066	Silver	SW-846 6010B	1	113495705002	12/17/2011 20:13	Tara L Snyder	1

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Analysis Report

Sample Description: HGR-121311-EB01 Grab Water Sample
Dow Hanging Rock, OH

LLI Sample # WW 6499033
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 12:30 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HGRE- SDG#: DHR08-01EB

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	SW-846 6020	1	113496050001A	12/19/2011 12:16	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	113495713003	12/19/2011 08:30	Damary Valentin	1
05705	WW/TL SW 846 ICP Digest (tot)	SW-846 3010A	1	113495705002	12/16/2011 09:38	Denise K Conners	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	113496050001	12/16/2011 09:56	Denise K Conners	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	113495713003	12/16/2011 09:00	Damary Valentin	1

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Analysis Report

Sample Description: S11-SS04-0002-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499034
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 08:50 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

40002 SDG#: DHR08-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	40		8	0.89
10949	Benzene	71-43-2	0.5	U	0.5	0.89
10949	Bromobenzene	108-86-1	1	U	1	0.89
10949	Bromochloromethane	74-97-5	1	U	1	0.89
10949	Bromodichloromethane	75-27-4	1	U	1	0.89
10949	Bromoform	75-25-2	1	U	1	0.89
10949	Bromomethane	74-83-9	2	U	2	0.89
10949	2-Butanone	78-93-3	5	J	4	0.89
10949	n-Butylbenzene	104-51-8	1	U	1	0.89
10949	sec-Butylbenzene	135-98-8	1	U	1	0.89
10949	tert-Butylbenzene	98-06-6	1	U	1	0.89
10949	Carbon Disulfide	75-15-0	8		1	0.89
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.89
10949	Chlorobenzene	108-90-7	1	U	1	0.89
10949	Chloroethane	75-00-3	2	U	2	0.89
10949	Chloroform	67-66-3	1	U	1	0.89
10949	Chloromethane	74-87-3	2	U	2	0.89
10949	2-Chlorotoluene	95-49-8	1	U	1	0.89
10949	4-Chlorotoluene	106-43-4	1	U	1	0.89
10949	Cyclohexane	110-82-7	1	U	1	0.89
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.89
10949	Dibromochloromethane	124-48-1	1	U	1	0.89
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.89
10949	Dibromomethane	74-95-3	1	U	1	0.89
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.89
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.89
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.89
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.89
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.89
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.89
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.89
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.89
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.89
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.89
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.89
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.89
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.89
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.89
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.89
10949	Ethylbenzene	100-41-4	1	U	1	0.89
10949	Freon 113	76-13-1	2	U	2	0.89
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.89
10949	2-Hexanone	591-78-6	3	U	3	0.89
10949	Isopropylbenzene	98-82-8	1	U	1	0.89
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.89
10949	Methyl Acetate	79-20-9	2	U	2	0.89
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.89
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.89
10949	Methylcyclohexane	108-87-2	1	U	1	0.89
10949	Methylene Chloride	75-09-2	2	U	2	0.89
10949	Naphthalene	91-20-3	1	U	1	0.89

Sample Description: S11-SS04-0002-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499034
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 08:50 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

40002 SDG#: DHR08-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.89
10949	Styrene	100-42-5	1	U	1	0.89
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.89
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.89
10949	Tetrachloroethene	127-18-4	1	U	1	0.89
10949	Toluene	108-88-3	1	U	1	0.89
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.89
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.89
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.89
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.89
10949	Trichloroethene	79-01-6	1	U	1	0.89
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.89
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.89
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.89
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.89
10949	Vinyl Acetate	108-05-4	2	U	2	0.89
10949	Vinyl Chloride	75-01-4	1	U	1	0.89
10949	m+p-Xylene	179601-23-1	1	U	1	0.89
10949	o-Xylene	95-47-6	1	U	1	0.89
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	J	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	20	U	20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	81	U	81	1
10727	Di-n-butylphthalate	84-74-2	81	U	81	1
10727	Carbazole	86-74-8	20	U	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	20	U	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1
10727	Diethylphthalate	84-66-2	81	U	81	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	81	U	81	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1

Sample Description: S11-SS04-0002-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499034
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 08:50 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

40002 SDG#: DHR08-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	410	U	410	1
10727	2,4-Dinitrotoluene	121-14-2	81	U	81	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	81	U	81	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	41	U	41	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	81	U	81	1
10727	4-Nitroaniline	100-01-6	81	U	81	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	81	U	81	1
10727	Pentachlorophenol	87-86-5	41	U	41	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	20	U	20	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	118		0.0215	1
06949	Cadmium	7440-43-9	0.958		0.0239	1
06951	Chromium	7440-47-3	23.5		0.167	1
06955	Lead	7439-92-1	15.5		0.262	1
06936	Selenium	7782-49-2	0.811	U	0.811	1
06966	Silver	7440-22-4	0.0990	U	0.0990	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	13.4		0.0945	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0127	J	0.0085	1

Lancaster Laboratories

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Analysis Report

Sample Description: S11-SS04-0002-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499034
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 08:50 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

40002 SDG#: DHR08-02

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	17.8	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113541AA	12/20/2011 15:36	Emily R Styer	0.89
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134826436	12/14/2011 13:36	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134826436	12/14/2011 13:36	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134826436	12/14/2011 13:35	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11349SLA026	12/16/2011 07:21	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11349SLA026	12/15/2011 15:30	David S Schrum	1
06946	Barium	SW-846 6010B	1	113495708001	12/19/2011 13:12	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113495708001	12/19/2011 13:12	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113495708001	12/19/2011 13:12	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113495708001	12/19/2011 13:12	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113495708001	12/19/2011 13:12	Eric L Eby	1
06966	Silver	SW-846 6010B	1	113495708001	12/19/2011 13:12	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113491026001A	12/21/2011 11:27	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113495711001	12/16/2011 08:09	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113495708001	12/15/2011 21:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113491026001	12/15/2011 21:27	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113495711001	12/15/2011 23:15	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11350820005A	12/16/2011 19:06	Scott W Freisher	1

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Analysis Report

Sample Description: S11-SS04-0305-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499035
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 08:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

40305 SDG#: DHR08-03BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	15	J	7	0.83
10949	Benzene	71-43-2	0.5	U	0.5	0.83
10949	Bromobenzene	108-86-1	1	U	1	0.83
10949	Bromochloromethane	74-97-5	1	U	1	0.83
10949	Bromodichloromethane	75-27-4	1	U	1	0.83
10949	Bromoform	75-25-2	1	U	1	0.83
10949	Bromomethane	74-83-9	2	U	2	0.83
10949	2-Butanone	78-93-3	4	U	4	0.83
10949	n-Butylbenzene	104-51-8	1	U	1	0.83
10949	sec-Butylbenzene	135-98-8	1	U	1	0.83
10949	tert-Butylbenzene	98-06-6	1	U	1	0.83
10949	Carbon Disulfide	75-15-0	1	U	1	0.83
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.83
10949	Chlorobenzene	108-90-7	1	U	1	0.83
10949	Chloroethane	75-00-3	2	U	2	0.83
10949	Chloroform	67-66-3	1	U	1	0.83
10949	Chloromethane	74-87-3	2	U	2	0.83
10949	2-Chlorotoluene	95-49-8	1	U	1	0.83
10949	4-Chlorotoluene	106-43-4	1	U	1	0.83
10949	Cyclohexane	110-82-7	1	U	1	0.83
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.83
10949	Dibromochloromethane	124-48-1	1	U	1	0.83
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.83
10949	Dibromomethane	74-95-3	1	U	1	0.83
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.83
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.83
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.83
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.83
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.83
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.83
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.83
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.83
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.83
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.83
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.83
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.83
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.83
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.83
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.83
10949	Ethylbenzene	100-41-4	1	U	1	0.83
10949	Freon 113	76-13-1	2	U	2	0.83
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.83
10949	2-Hexanone	591-78-6	3	U	3	0.83
10949	Isopropylbenzene	98-82-8	1	U	1	0.83
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.83
10949	Methyl Acetate	79-20-9	2	U	2	0.83
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.83
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.83
10949	Methylcyclohexane	108-87-2	1	U	1	0.83
10949	Methylene Chloride	75-09-2	2	U	2	0.83
10949	Naphthalene	91-20-3	1	U	1	0.83

Sample Description: S11-SS04-0305-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499035
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 08:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

40305 SDG#: DHR08-03BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.83
10949	Styrene	100-42-5	1	U	1	0.83
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.83
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.83
10949	Tetrachloroethene	127-18-4	1	U	1	0.83
10949	Toluene	108-88-3	1	U	1	0.83
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.83
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.83
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.83
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.83
10949	Trichloroethene	79-01-6	1	U	1	0.83
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.83
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.83
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.83
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.83
10949	Vinyl Acetate	108-05-4	2	U	2	0.83
10949	Vinyl Chloride	75-01-4	1	U	1	0.83
10949	m+p-Xylene	179601-23-1	1	U	1	0.83
10949	o-Xylene	95-47-6	1	U	1	0.83
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	210	U	210	1
10727	1,1'-Biphenyl	92-52-4	21	U	21	1
10727	4-Bromophenyl-phenylether	101-55-3	21	U	21	1
10727	Butylbenzylphthalate	85-68-7	83	U	83	1
10727	Di-n-butylphthalate	84-74-2	83	U	83	1
10727	Carbazole	86-74-8	21	U	21	1
10727	4-Chloro-3-methylphenol	59-50-7	21	U	21	1
10727	4-Chloroaniline	106-47-8	21	U	21	1
10727	bis(2-Chloroethoxy)methane	111-91-1	21	U	21	1
10727	bis(2-Chloroethyl)ether	111-44-4	21	U	21	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	21	U	21	1
10727	4-Chlorophenyl-phenylether	7005-72-3	21	U	21	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	21	U	21	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	21	U	21	1
10727	Diethylphthalate	84-66-2	83	U	83	1
10727	2,4-Dimethylphenol	105-67-9	21	U	21	1
10727	Dimethylphthalate	131-11-3	83	U	83	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	210	U	210	1

Sample Description: S11-SS04-0305-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499035
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 08:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

40305 SDG#: DHR08-03BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	410	U	410	1
10727	2,4-Dinitrotoluene	121-14-2	83	U	83	1
10727	2,6-Dinitrotoluene	606-20-2	21	U	21	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	83	U	83	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	210	U	210	1
10727	Hexachloroethane	67-72-1	41	U	41	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	21	U	21	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	21	U	21	1
10727	4-Methylphenol	106-44-5	21	U	21	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	21	U	21	1
10727	3-Nitroaniline	99-09-2	83	U	83	1
10727	4-Nitroaniline	100-01-6	83	U	83	1
10727	Nitrobenzene	98-95-3	21	U	21	1
10727	2-Nitrophenol	88-75-5	21	U	21	1
10727	4-Nitrophenol	100-02-7	210	U	210	1
10727	N-Nitroso-di-n-propylamine	621-64-7	21	U	21	1
10727	N-Nitrosodiphenylamine	86-30-6	21	U	21	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	83	U	83	1
10727	Pentachlorophenol	87-86-5	41	U	41	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	21	U	21	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	21	U	21	1
10727	2,4,6-Trichlorophenol	88-06-2	21	U	21	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	76.1		0.0214	1
06949	Cadmium	7440-43-9	1.02		0.0238	1
06951	Chromium	7440-47-3	21.9		0.167	1
06955	Lead	7439-92-1	14.8		0.262	1
06936	Selenium	7782-49-2	0.809	U	0.809	1
06966	Silver	7440-22-4	0.0988	U	0.0988	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	15.3		0.0961	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0222	J	0.0083	1

Sample Description: S11-SS04-0305-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499035
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 08:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

40305 SDG#: DHR08-03BKG

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	19.2	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113541AA	12/20/2011 15:59	Emily R Styer	0.83
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134826436	12/14/2011 13:38	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134826436	12/14/2011 13:39	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134826436	12/14/2011 13:37	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11349SLA026	12/16/2011 06:05	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11349SLA026	12/15/2011 15:30	David S Schrum	1
06946	Barium	SW-846 6010B	1	113495708001	12/19/2011 12:50	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113495708001	12/19/2011 12:50	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113495708001	12/19/2011 12:50	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113495708001	12/19/2011 12:50	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113495708001	12/20/2011 11:02	Joanne M Gates	1
06966	Silver	SW-846 6010B	1	113495708001	12/19/2011 12:50	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113491026001A	12/21/2011 11:15	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113495711001	12/16/2011 06:29	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113495708001	12/15/2011 21:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113491026001	12/15/2011 21:27	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113495711001	12/15/2011 23:15	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11350820005A	12/16/2011 19:06	Scott W Freisher	1

Lancaster Laboratories

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Analysis Report

Sample Description: S11-SS04-0305-121311MS Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499036
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 08:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

40305 SDG#: DHR08-03MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**	**ug/kg**	
10949	Acetone	67-64-1	220	7	0.87
10949	Benzene	71-43-2	21	0.5	0.87
10949	Bromobenzene	108-86-1	23	1	0.87
10949	Bromochloromethane	74-97-5	21	1	0.87
10949	Bromodichloromethane	75-27-4	20	1	0.87
10949	Bromoform	75-25-2	22	1	0.87
10949	Bromomethane	74-83-9	23	2	0.87
10949	2-Butanone	78-93-3	190	4	0.87
10949	n-Butylbenzene	104-51-8	21	1	0.87
10949	sec-Butylbenzene	135-98-8	23	1	0.87
10949	tert-Butylbenzene	98-06-6	24	1	0.87
10949	Carbon Disulfide	75-15-0	22	1	0.87
10949	Carbon Tetrachloride	56-23-5	25	1	0.87
10949	Chlorobenzene	108-90-7	22	1	0.87
10949	Chloroethane	75-00-3	21	2	0.87
10949	Chloroform	67-66-3	22	1	0.87
10949	Chloromethane	74-87-3	17	2	0.87
10949	2-Chlorotoluene	95-49-8	22	1	0.87
10949	4-Chlorotoluene	106-43-4	22	1	0.87
10949	Cyclohexane	110-82-7	21	1	0.87
10949	1,2-Dibromo-3-chloropropane	96-12-8	25	2	0.87
10949	Dibromochloromethane	124-48-1	22	1	0.87
10949	1,2-Dibromoethane	106-93-4	23	1	0.87
10949	Dibromomethane	74-95-3	21	1	0.87
10949	1,2-Dichlorobenzene	95-50-1	22	1	0.87
10949	1,3-Dichlorobenzene	541-73-1	23	1	0.87
10949	1,4-Dichlorobenzene	106-46-7	22	1	0.87
10949	Dichlorodifluoromethane	75-71-8	23	2	0.87
10949	1,1-Dichloroethane	75-34-3	21	1	0.87
10949	1,2-Dichloroethane	107-06-2	25	1	0.87
10949	1,1-Dichloroethene	75-35-4	22	1	0.87
10949	cis-1,2-Dichloroethene	156-59-2	21	1	0.87
10949	trans-1,2-Dichloroethene	156-60-5	22	1	0.87
10949	1,2-Dichloropropane	78-87-5	18	1	0.87
10949	1,3-Dichloropropane	142-28-9	21	1	0.87
10949	2,2-Dichloropropane	594-20-7	20	1	0.87
10949	1,1-Dichloropropene	563-58-6	23	1	0.87
10949	cis-1,3-Dichloropropene	10061-01-5	18	1	0.87
10949	trans-1,3-Dichloropropene	10061-02-6	19	1	0.87
10949	Ethylbenzene	100-41-4	23	1	0.87
10949	Freon 113	76-13-1	23	2	0.87
10949	Hexachlorobutadiene	87-68-3	23	2	0.87
10949	2-Hexanone	591-78-6	110	3	0.87
10949	Isopropylbenzene	98-82-8	24	1	0.87
10949	p-Isopropyltoluene	99-87-6	23	1	0.87
10949	Methyl Acetate	79-20-9	25	2	0.87
10949	Methyl Tertiary Butyl Ether	1634-04-4	22	0.5	0.87
10949	4-Methyl-2-pentanone	108-10-1	120	3	0.87
10949	Methylcyclohexane	108-87-2	20	1	0.87
10949	Methylene Chloride	75-09-2	20	2	0.87
10949	Naphthalene	91-20-3	21	1	0.87

Sample Description: S11-SS04-0305-121311MS Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499036
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 08:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

40305 SDG#: DHR08-03MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**	**ug/kg**	
10949	n-Propylbenzene	103-65-1	23	1	0.87
10949	Styrene	100-42-5	10	1	0.87
10949	1,1,1,2-Tetrachloroethane	630-20-6	23	1	0.87
10949	1,1,2,2-Tetrachloroethane	79-34-5	20	1	0.87
10949	Tetrachloroethene	127-18-4	26	1	0.87
10949	Toluene	108-88-3	22	1	0.87
10949	1,2,3-Trichlorobenzene	87-61-6	22	1	0.87
10949	1,2,4-Trichlorobenzene	120-82-1	21	1	0.87
10949	1,1,1-Trichloroethane	71-55-6	25	1	0.87
10949	1,1,2-Trichloroethane	79-00-5	21	1	0.87
10949	Trichloroethene	79-01-6	22	1	0.87
10949	Trichlorofluoromethane	75-69-4	28	2	0.87
10949	1,2,3-Trichloropropane	96-18-4	24	1	0.87
10949	1,2,4-Trimethylbenzene	95-63-6	23	1	0.87
10949	1,3,5-Trimethylbenzene	108-67-8	23	1	0.87
10949	Vinyl Acetate	108-05-4	74	2	0.81
10949	Vinyl Chloride	75-01-4	19	1	0.87
10949	m+p-Xylene	179601-23-1	45	1	0.87
10949	o-Xylene	95-47-6	22	1	0.87
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**	**ug/kg**	
10727	Acenaphthene	83-32-9	2,000	4	1
10727	Acenaphthylene	208-96-8	2,100	4	1
10727	Anthracene	120-12-7	2,000	4	1
10727	Benzo(a)anthracene	56-55-3	1,900	4	1
10727	Benzo(a)pyrene	50-32-8	2,100	4	1
10727	Benzo(b)fluoranthene	205-99-2	2,100	4	1
10727	Benzo(g,h,i)perylene	191-24-2	2,100	4	1
10727	Benzo(k)fluoranthene	207-08-9	2,100	4	1
10727	Benzyl alcohol	100-51-6	2,000	210	1
10727	1,1'-Biphenyl	92-52-4	2,000	21	1
10727	4-Bromophenyl-phenylether	101-55-3	2,000	21	1
10727	Butylbenzylphthalate	85-68-7	2,000	83	1
10727	Di-n-butylphthalate	84-74-2	2,000	83	1
10727	Carbazole	86-74-8	1,900	21	1
10727	4-Chloro-3-methylphenol	59-50-7	1,900	21	1
10727	4-Chloroaniline	106-47-8	1,600	21	1
10727	bis(2-Chloroethoxy)methane	111-91-1	2,000	21	1
10727	bis(2-Chloroethyl)ether	111-44-4	2,000	21	1
10727	2-Chloronaphthalene	91-58-7	2,300	9	1
10727	2-Chlorophenol	95-57-8	2,000	21	1
10727	4-Chlorophenyl-phenylether	7005-72-3	2,000	21	1
10727	Chrysene	218-01-9	1,900	4	1
10727	Dibenz(a,h)anthracene	53-70-3	2,000	4	1
10727	Dibenzofuran	132-64-9	1,900	21	1
10727	3,3'-Dichlorobenzidine	91-94-1	1,500	120	1
10727	2,4-Dichlorophenol	120-83-2	2,000	21	1
10727	Diethylphthalate	84-66-2	1,900	83	1
10727	2,4-Dimethylphenol	105-67-9	1,900	21	1
10727	Dimethylphthalate	131-11-3	2,000	83	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	1,900	210	1

Sample Description: S11-SS04-0305-121311MS Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499036
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 08:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

40305 SDG#: DHR08-03MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**	**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	3,400	410	1
10727	2,4-Dinitrotoluene	121-14-2	2,000	83	1
10727	2,6-Dinitrotoluene	606-20-2	2,000	21	1
10727	1,4-Dioxane	123-91-1	1,100	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	2,000	83	1
10727	Fluoranthene	206-44-0	1,900	4	1
10727	Fluorene	86-73-7	2,000	4	1
10727	Hexachlorobenzene	118-74-1	1,900	4	1
10727	Hexachlorocyclopentadiene	77-47-4	4,300	210	1
10727	Hexachloroethane	67-72-1	1,900	41	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	2,100	4	1
10727	Isophorone	78-59-1	2,000	21	1
10727	2-Methylnaphthalene	91-57-6	1,900	4	1
10727	2-Methylphenol	95-48-7	2,000	21	1
10727	4-Methylphenol	106-44-5	2,000	21	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.				
10727	2-Nitroaniline	88-74-4	2,000	21	1
10727	3-Nitroaniline	99-09-2	1,900	83	1
10727	4-Nitroaniline	100-01-6	1,500	83	1
10727	Nitrobenzene	98-95-3	2,000	21	1
10727	2-Nitrophenol	88-75-5	1,900	21	1
10727	4-Nitrophenol	100-02-7	1,600	210	1
10727	N-Nitroso-di-n-propylamine	621-64-7	1,800	21	1
10727	N-Nitrosodiphenylamine	86-30-6	2,000	21	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.				
10727	Di-n-octylphthalate	117-84-0	2,200	83	1
10727	Pentachlorophenol	87-86-5	1,900	41	1
10727	Phenanthrene	85-01-8	2,000	4	1
10727	Phenol	108-95-2	1,900	21	1
10727	Pyrene	129-00-0	1,900	4	1
10727	2,4,5-Trichlorophenol	95-95-4	2,000	21	1
10727	2,4,6-Trichlorophenol	88-06-2	2,000	21	1
Metals	**SW-846 6010B**		**mg/kg**	**mg/kg**	
06946	Barium	7440-39-3	342	0.0216	1
06949	Cadmium	7440-43-9	6.76	0.0240	1
06951	Chromium	7440-47-3	53.0	0.168	1
06955	Lead	7439-92-1	33.9	0.264	1
06936	Selenium	7782-49-2	17.9	0.817	1
06966	Silver	7440-22-4	5.82	0.0997	1
	SW-846 6020		**mg/kg**	**mg/kg**	
06125	Arsenic	7440-38-2	17.8	0.0961	2
	SW-846 7471A		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.221	0.0085	1

Lancaster Laboratories

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Analysis Report

Sample Description: S11-SS04-0305-121311MS Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499036
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 08:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

40305 SDG#: DHR08-03MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00118	Moisture	n.a.	19.2	0.50	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113541AA	12/20/2011 16:22	Emily R Styer	0.87
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113541AA	12/20/2011 17:07	Emily R Styer	0.81
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134826436	12/14/2011 13:40	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134826436	12/14/2011 13:41	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134826436	12/14/2011 13:40	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11349SLA026	12/16/2011 06:30	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11349SLA026	12/15/2011 15:30	David S Schrum	1
06946	Barium	SW-846 6010B	1	113495708001	12/19/2011 13:01	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113495708001	12/19/2011 13:01	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113495708001	12/19/2011 13:01	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113495708001	12/19/2011 13:01	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113495708001	12/19/2011 13:01	Eric L Eby	1
06966	Silver	SW-846 6010B	1	113495708001	12/19/2011 13:01	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113491026001A	12/21/2011 11:19	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113495711001	12/16/2011 06:33	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113495708001	12/15/2011 21:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113491026001	12/15/2011 21:27	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113495711001	12/15/2011 23:15	Annamaria Stipkovits	1
00118	Moisture	SM20 2540 G	1	11350820005A	12/16/2011 19:06	Scott W Freisher	1

Lancaster Laboratories

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Analysis Report

Sample Description: S11-SS04-0305-121311MSD Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499037
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 08:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

40305 SDG#: DHR08-03MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**	**ug/kg**	
10949	Acetone	67-64-1	220	7	0.87
10949	Benzene	71-43-2	20	0.5	0.87
10949	Bromobenzene	108-86-1	22	1	0.87
10949	Bromochloromethane	74-97-5	22	1	0.87
10949	Bromodichloromethane	75-27-4	20	1	0.87
10949	Bromoform	75-25-2	21	1	0.87
10949	Bromomethane	74-83-9	23	2	0.87
10949	2-Butanone	78-93-3	170	4	0.87
10949	n-Butylbenzene	104-51-8	20	1	0.87
10949	sec-Butylbenzene	135-98-8	22	1	0.87
10949	tert-Butylbenzene	98-06-6	23	1	0.87
10949	Carbon Disulfide	75-15-0	23	1	0.87
10949	Carbon Tetrachloride	56-23-5	23	1	0.87
10949	Chlorobenzene	108-90-7	21	1	0.87
10949	Chloroethane	75-00-3	22	2	0.87
10949	Chloroform	67-66-3	22	1	0.87
10949	Chloromethane	74-87-3	18	2	0.87
10949	2-Chlorotoluene	95-49-8	21	1	0.87
10949	4-Chlorotoluene	106-43-4	21	1	0.87
10949	Cyclohexane	110-82-7	21	1	0.87
10949	1,2-Dibromo-3-chloropropane	96-12-8	23	2	0.87
10949	Dibromochloromethane	124-48-1	21	1	0.87
10949	1,2-Dibromoethane	106-93-4	22	1	0.87
10949	Dibromomethane	74-95-3	20	1	0.87
10949	1,2-Dichlorobenzene	95-50-1	21	1	0.87
10949	1,3-Dichlorobenzene	541-73-1	22	1	0.87
10949	1,4-Dichlorobenzene	106-46-7	21	1	0.87
10949	Dichlorodifluoromethane	75-71-8	24	2	0.87
10949	1,1-Dichloroethane	75-34-3	21	1	0.87
10949	1,2-Dichloroethane	107-06-2	24	1	0.87
10949	1,1-Dichloroethene	75-35-4	21	1	0.87
10949	cis-1,2-Dichloroethene	156-59-2	20	1	0.87
10949	trans-1,2-Dichloroethene	156-60-5	21	1	0.87
10949	1,2-Dichloropropane	78-87-5	18	1	0.87
10949	1,3-Dichloropropane	142-28-9	20	1	0.87
10949	2,2-Dichloropropane	594-20-7	19	1	0.87
10949	1,1-Dichloropropene	563-58-6	21	1	0.87
10949	cis-1,3-Dichloropropene	10061-01-5	18	1	0.87
10949	trans-1,3-Dichloropropene	10061-02-6	19	1	0.87
10949	Ethylbenzene	100-41-4	22	1	0.87
10949	Freon 113	76-13-1	23	2	0.87
10949	Hexachlorobutadiene	87-68-3	25	2	0.87
10949	2-Hexanone	591-78-6	100	3	0.87
10949	Isopropylbenzene	98-82-8	23	1	0.87
10949	p-Isopropyltoluene	99-87-6	23	1	0.87
10949	Methyl Acetate	79-20-9	26	2	0.87
10949	Methyl Tertiary Butyl Ether	1634-04-4	21	0.5	0.87
10949	4-Methyl-2-pentanone	108-10-1	110	3	0.87
10949	Methylcyclohexane	108-87-2	22	1	0.87
10949	Methylene Chloride	75-09-2	19	2	0.87
10949	Naphthalene	91-20-3	21	1	0.87

Sample Description: S11-SS04-0305-121311MSD Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499037
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 08:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

40305 SDG#: DHR08-03MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**	**ug/kg**	
10949	n-Propylbenzene	103-65-1	21	1	0.87
10949	Styrene	100-42-5	9	1	0.87
10949	1,1,1,2-Tetrachloroethane	630-20-6	22	1	0.87
10949	1,1,2,2-Tetrachloroethane	79-34-5	19	1	0.87
10949	Tetrachloroethene	127-18-4	25	1	0.87
10949	Toluene	108-88-3	21	1	0.87
10949	1,2,3-Trichlorobenzene	87-61-6	22	1	0.87
10949	1,2,4-Trichlorobenzene	120-82-1	21	1	0.87
10949	1,1,1-Trichloroethane	71-55-6	23	1	0.87
10949	1,1,2-Trichloroethane	79-00-5	21	1	0.87
10949	Trichloroethene	79-01-6	20	1	0.87
10949	Trichlorofluoromethane	75-69-4	28	2	0.87
10949	1,2,3-Trichloropropane	96-18-4	22	1	0.87
10949	1,2,4-Trimethylbenzene	95-63-6	22	1	0.87
10949	1,3,5-Trimethylbenzene	108-67-8	22	1	0.87
10949	Vinyl Acetate	108-05-4	95	2	0.83
10949	Vinyl Chloride	75-01-4	20	1	0.87
10949	m+p-Xylene	179601-23-1	43	1	0.87
10949	o-Xylene	95-47-6	21	1	0.87
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**	**ug/kg**	
10727	Acenaphthene	83-32-9	1,900	4	1
10727	Acenaphthylene	208-96-8	2,000	4	1
10727	Anthracene	120-12-7	1,900	4	1
10727	Benzo(a)anthracene	56-55-3	1,900	4	1
10727	Benzo(a)pyrene	50-32-8	2,000	4	1
10727	Benzo(b)fluoranthene	205-99-2	2,000	4	1
10727	Benzo(g,h,i)perylene	191-24-2	2,000	4	1
10727	Benzo(k)fluoranthene	207-08-9	2,000	4	1
10727	Benzyl alcohol	100-51-6	1,900	210	1
10727	1,1'-Biphenyl	92-52-4	1,900	21	1
10727	4-Bromophenyl-phenylether	101-55-3	1,900	21	1
10727	Butylbenzylphthalate	85-68-7	1,900	83	1
10727	Di-n-butylphthalate	84-74-2	1,900	83	1
10727	Carbazole	86-74-8	1,800	21	1
10727	4-Chloro-3-methylphenol	59-50-7	1,800	21	1
10727	4-Chloroaniline	106-47-8	1,400	21	1
10727	bis(2-Chloroethoxy)methane	111-91-1	1,900	21	1
10727	bis(2-Chloroethyl)ether	111-44-4	1,900	21	1
10727	2-Chloronaphthalene	91-58-7	2,200	9	1
10727	2-Chlorophenol	95-57-8	1,900	21	1
10727	4-Chlorophenyl-phenylether	7005-72-3	1,900	21	1
10727	Chrysene	218-01-9	1,800	4	1
10727	Dibenz(a,h)anthracene	53-70-3	2,000	4	1
10727	Dibenzofuran	132-64-9	1,900	21	1
10727	3,3'-Dichlorobenzidine	91-94-1	1,400	120	1
10727	2,4-Dichlorophenol	120-83-2	1,900	21	1
10727	Diethylphthalate	84-66-2	1,900	83	1
10727	2,4-Dimethylphenol	105-67-9	1,800	21	1
10727	Dimethylphthalate	131-11-3	1,900	83	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	1,800	210	1

Sample Description: S11-SS04-0305-121311MSD Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499037
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 08:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

40305 SDG#: DHR08-03MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**	**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	3,300	410	1
10727	2,4-Dinitrotoluene	121-14-2	1,900	83	1
10727	2,6-Dinitrotoluene	606-20-2	1,900	21	1
10727	1,4-Dioxane	123-91-1	1,100	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	1,900	83	1
10727	Fluoranthene	206-44-0	1,900	4	1
10727	Fluorene	86-73-7	1,900	4	1
10727	Hexachlorobenzene	118-74-1	1,900	4	1
10727	Hexachlorocyclopentadiene	77-47-4	4,300	210	1
10727	Hexachloroethane	67-72-1	1,800	41	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	2,000	4	1
10727	Isophorone	78-59-1	1,900	21	1
10727	2-Methylnaphthalene	91-57-6	1,800	4	1
10727	2-Methylphenol	95-48-7	1,900	21	1
10727	4-Methylphenol	106-44-5	2,000	21	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.				
10727	2-Nitroaniline	88-74-4	1,900	21	1
10727	3-Nitroaniline	99-09-2	1,800	83	1
10727	4-Nitroaniline	100-01-6	1,500	83	1
10727	Nitrobenzene	98-95-3	1,900	21	1
10727	2-Nitrophenol	88-75-5	1,900	21	1
10727	4-Nitrophenol	100-02-7	1,600	210	1
10727	N-Nitroso-di-n-propylamine	621-64-7	1,700	21	1
10727	N-Nitrosodiphenylamine	86-30-6	2,000	21	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.				
10727	Di-n-octylphthalate	117-84-0	2,100	83	1
10727	Pentachlorophenol	87-86-5	1,800	41	1
10727	Phenanthrene	85-01-8	1,900	4	1
10727	Phenol	108-95-2	1,900	21	1
10727	Pyrene	129-00-0	1,900	4	1
10727	2,4,5-Trichlorophenol	95-95-4	1,900	21	1
10727	2,4,6-Trichlorophenol	88-06-2	1,900	21	1
Metals	**SW-846 6010B**		**mg/kg**	**mg/kg**	
06946	Barium	7440-39-3	344	0.0216	1
06949	Cadmium	7440-43-9	6.74	0.0240	1
06951	Chromium	7440-47-3	52.5	0.168	1
06955	Lead	7439-92-1	32.3	0.264	1
06936	Selenium	7782-49-2	18.4	0.817	1
06966	Silver	7440-22-4	5.80	0.0997	1
	SW-846 6020		**mg/kg**	**mg/kg**	
06125	Arsenic	7440-38-2	17.1	0.0990	2
	SW-846 7471A		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.208	0.0084	1

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Analysis Report

Sample Description: S11-SS04-0305-121311MSD Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499037
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 08:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

40305 SDG#: DHR08-03MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00118	Moisture	n.a.	19.2	0.50	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113541AA	12/20/2011 16:44	Emily R Styer	0.87
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113541AA	12/20/2011 17:30	Emily R Styer	0.83
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134826436	12/14/2011 13:42	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134826436	12/14/2011 13:43	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134826436	12/14/2011 13:42	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11349SLA026	12/16/2011 06:56	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11349SLA026	12/15/2011 15:30	David S Schrum	1
06946	Barium	SW-846 6010B	1	113495708001	12/19/2011 13:05	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113495708001	12/19/2011 13:05	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113495708001	12/19/2011 13:05	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113495708001	12/19/2011 13:05	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113495708001	12/19/2011 13:05	Eric L Eby	1
06966	Silver	SW-846 6010B	1	113495708001	12/19/2011 13:05	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113491026001A	12/21/2011 11:21	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113495711001	12/16/2011 06:34	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113495708001	12/15/2011 21:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113491026001	12/15/2011 21:27	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113495711001	12/15/2011 23:15	Annamaria Stipkovits	1
00118	Moisture	SM20 2540 G	1	11350820005A	12/16/2011 19:06	Scott W Freisher	1

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Analysis Report

Sample Description: S11-SS04-0305-121311DUP Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499038
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 08:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

40305 SDG#: DHR08-03DUP

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals		**SW-846 6010B**	**mg/kg**	**mg/kg**	
06946	Barium	7440-39-3	79.6	0.0221	1
06949	Cadmium	7440-43-9	0.995	0.0245	1
06951	Chromium	7440-47-3	21.3	0.172	1
06955	Lead	7439-92-1	14.5	0.270	1
06936	Selenium	7782-49-2	0.833 U	0.833	1
06966	Silver	7440-22-4	0.102 U	0.102	1
		SW-846 6020	**mg/kg**	**mg/kg**	
06125	Arsenic	7440-38-2	14.3	0.0952	2
		SW-846 7471A	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0261 J	0.0086	1
Wet Chemistry		**SM20 2540 G**	**%**	**%**	
00118	Moisture	n.a.	19.2	0.50	1
00121	Moisture Duplicate	n.a.	18.5	0.50	1

The duplicate moisture value is provided to assess the precision of the moisture test. For comparability purposes, the initial moisture determination is the value used to perform dry weight calculations.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06946	Barium	SW-846 6010B	1	113495708001	12/19/2011 12:57	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113495708001	12/19/2011 12:57	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113495708001	12/19/2011 12:57	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113495708001	12/19/2011 12:57	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113495708001	12/20/2011 11:10	Joanne M Gates	1
06966	Silver	SW-846 6010B	1	113495708001	12/19/2011 12:57	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113491026001A	12/21/2011 11:18	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113495711001	12/16/2011 06:32	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113495708001	12/15/2011 21:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113491026001	12/15/2011 21:27	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113495711001	12/15/2011 23:15	Annamaria Stipkovits	1
00118	Moisture	SM20 2540 G	1	11350820005A	12/16/2011 19:06	Scott W Freisher	1
00121	Moisture Duplicate	SM20 2540 G	1	11350820005A	12/16/2011 19:06	Scott W Freisher	1

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Analysis Report

Sample Description: S11-SS04-0810-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499039
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 09:00 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

40810 SDG#: DHR08-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	25		8	0.89
10949	Benzene	71-43-2	0.6	U	0.6	0.89
10949	Bromobenzene	108-86-1	1	U	1	0.89
10949	Bromochloromethane	74-97-5	1	U	1	0.89
10949	Bromodichloromethane	75-27-4	1	U	1	0.89
10949	Bromoform	75-25-2	1	U	1	0.89
10949	Bromomethane	74-83-9	2	U	2	0.89
10949	2-Butanone	78-93-3	4	U	4	0.89
10949	n-Butylbenzene	104-51-8	1	U	1	0.89
10949	sec-Butylbenzene	135-98-8	1	U	1	0.89
10949	tert-Butylbenzene	98-06-6	1	U	1	0.89
10949	Carbon Disulfide	75-15-0	1	U	1	0.89
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.89
10949	Chlorobenzene	108-90-7	1	U	1	0.89
10949	Chloroethane	75-00-3	2	U	2	0.89
10949	Chloroform	67-66-3	1	U	1	0.89
10949	Chloromethane	74-87-3	2	U	2	0.89
10949	2-Chlorotoluene	95-49-8	1	U	1	0.89
10949	4-Chlorotoluene	106-43-4	1	U	1	0.89
10949	Cyclohexane	110-82-7	1	U	1	0.89
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.89
10949	Dibromochloromethane	124-48-1	1	U	1	0.89
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.89
10949	Dibromomethane	74-95-3	1	U	1	0.89
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.89
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.89
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.89
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.89
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.89
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.89
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.89
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.89
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.89
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.89
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.89
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.89
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.89
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.89
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.89
10949	Ethylbenzene	100-41-4	1	U	1	0.89
10949	Freon 113	76-13-1	2	U	2	0.89
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.89
10949	2-Hexanone	591-78-6	3	U	3	0.89
10949	Isopropylbenzene	98-82-8	1	U	1	0.89
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.89
10949	Methyl Acetate	79-20-9	2	U	2	0.89
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.6	U	0.6	0.89
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.89
10949	Methylcyclohexane	108-87-2	1	U	1	0.89
10949	Methylene Chloride	75-09-2	2	U	2	0.89
10949	Naphthalene	91-20-3	1	U	1	0.89

Sample Description: S11-SS04-0810-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499039
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 09:00 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

40810 SDG#: DHR08-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.89
10949	Styrene	100-42-5	1	U	1	0.89
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.89
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.89
10949	Tetrachloroethene	127-18-4	1	U	1	0.89
10949	Toluene	108-88-3	1	U	1	0.89
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.89
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.89
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.89
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.89
10949	Trichloroethene	79-01-6	1	U	1	0.89
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.89
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.89
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.89
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.89
10949	Vinyl Acetate	108-05-4	2	U	2	0.89
10949	Vinyl Chloride	75-01-4	1	U	1	0.89
10949	m+p-Xylene	179601-23-1	1	U	1	0.89
10949	o-Xylene	95-47-6	1	U	1	0.89
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	210	U	210	1
10727	1,1'-Biphenyl	92-52-4	21	U	21	1
10727	4-Bromophenyl-phenylether	101-55-3	21	U	21	1
10727	Butylbenzylphthalate	85-68-7	82	U	82	1
10727	Di-n-butylphthalate	84-74-2	82	U	82	1
10727	Carbazole	86-74-8	21	U	21	1
10727	4-Chloro-3-methylphenol	59-50-7	21	U	21	1
10727	4-Chloroaniline	106-47-8	21	U	21	1
10727	bis(2-Chloroethoxy)methane	111-91-1	21	U	21	1
10727	bis(2-Chloroethyl)ether	111-44-4	21	U	21	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	21	U	21	1
10727	4-Chlorophenyl-phenylether	7005-72-3	21	U	21	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	21	U	21	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	21	U	21	1
10727	Diethylphthalate	84-66-2	82	U	82	1
10727	2,4-Dimethylphenol	105-67-9	21	U	21	1
10727	Dimethylphthalate	131-11-3	82	U	82	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	210	U	210	1

Sample Description: S11-SS04-0810-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499039
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 09:00 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

40810 SDG#: DHR08-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	410	U	410	1
10727	2,4-Dinitrotoluene	121-14-2	82	U	82	1
10727	2,6-Dinitrotoluene	606-20-2	21	U	21	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	82	U	82	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	210	U	210	1
10727	Hexachloroethane	67-72-1	41	U	41	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	21	U	21	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	21	U	21	1
10727	4-Methylphenol	106-44-5	21	U	21	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	21	U	21	1
10727	3-Nitroaniline	99-09-2	82	U	82	1
10727	4-Nitroaniline	100-01-6	82	U	82	1
10727	Nitrobenzene	98-95-3	21	U	21	1
10727	2-Nitrophenol	88-75-5	21	U	21	1
10727	4-Nitrophenol	100-02-7	210	U	210	1
10727	N-Nitroso-di-n-propylamine	621-64-7	21	U	21	1
10727	N-Nitrosodiphenylamine	86-30-6	21	U	21	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	82	U	82	1
10727	Pentachlorophenol	87-86-5	41	U	41	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	21	U	21	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	21	U	21	1
10727	2,4,6-Trichlorophenol	88-06-2	21	U	21	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	54.2		0.0218	1
06949	Cadmium	7440-43-9	0.758		0.0242	1
06951	Chromium	7440-47-3	12.7		0.169	1
06955	Lead	7439-92-1	11.1		0.266	1
06936	Selenium	7782-49-2	0.823	U	0.823	1
06966	Silver	7440-22-4	0.100	U	0.100	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	12.7		0.0959	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0148	J	0.0086	1

Lancaster Laboratories

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Analysis Report

Sample Description: S11-SS04-0810-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499039
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 09:00 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

40810 SDG#: DHR08-04

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	19.0	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113541AA	12/20/2011 17:53	Emily R Styer	0.89
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134826436	12/14/2011 13:44	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134826436	12/14/2011 13:45	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134826436	12/14/2011 13:44	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11349SLA026	12/16/2011 07:46	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11349SLA026	12/15/2011 15:30	David S Schrum	1
06946	Barium	SW-846 6010B	1	113495708001	12/19/2011 13:16	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113495708001	12/19/2011 13:16	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113495708001	12/19/2011 13:16	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113495708001	12/19/2011 13:16	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113495708001	12/19/2011 13:16	Eric L Eby	1
06966	Silver	SW-846 6010B	1	113495708001	12/19/2011 13:16	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113491026001A	12/21/2011 11:29	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113495711001	12/16/2011 06:35	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113495708001	12/15/2011 21:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113491026001	12/15/2011 21:27	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113495711001	12/15/2011 23:15	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11350820005A	12/16/2011 19:06	Scott W Freisher	1

Lancaster Laboratories

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Analysis Report

Sample Description: S11-SS03-0002-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499040
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 09:20 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

30002 SDG#: DHR08-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	73		7	0.81
10949	Benzene	71-43-2	0.5	U	0.5	0.81
10949	Bromobenzene	108-86-1	1	U	1	0.81
10949	Bromochloromethane	74-97-5	1	U	1	0.81
10949	Bromodichloromethane	75-27-4	1	U	1	0.81
10949	Bromoform	75-25-2	1	U	1	0.81
10949	Bromomethane	74-83-9	2	U	2	0.81
10949	2-Butanone	78-93-3	10		4	0.81
10949	n-Butylbenzene	104-51-8	1	U	1	0.81
10949	sec-Butylbenzene	135-98-8	1	U	1	0.81
10949	tert-Butylbenzene	98-06-6	1	U	1	0.81
10949	Carbon Disulfide	75-15-0	1	U	1	0.81
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.81
10949	Chlorobenzene	108-90-7	1	U	1	0.81
10949	Chloroethane	75-00-3	2	U	2	0.81
10949	Chloroform	67-66-3	1	U	1	0.81
10949	Chloromethane	74-87-3	2	U	2	0.81
10949	2-Chlorotoluene	95-49-8	1	U	1	0.81
10949	4-Chlorotoluene	106-43-4	1	U	1	0.81
10949	Cyclohexane	110-82-7	1	U	1	0.81
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.81
10949	Dibromochloromethane	124-48-1	1	U	1	0.81
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.81
10949	Dibromomethane	74-95-3	1	U	1	0.81
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.81
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.81
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.81
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.81
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.81
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.81
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.81
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.81
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.81
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.81
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.81
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.81
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.81
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.81
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.81
10949	Ethylbenzene	100-41-4	1	U	1	0.81
10949	Freon 113	76-13-1	2	U	2	0.81
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.81
10949	2-Hexanone	591-78-6	3	U	3	0.81
10949	Isopropylbenzene	98-82-8	1	U	1	0.81
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.81
10949	Methyl Acetate	79-20-9	2	U	2	0.81
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.81
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.81
10949	Methylcyclohexane	108-87-2	1	U	1	0.81
10949	Methylene Chloride	75-09-2	2	U	2	0.81
10949	Naphthalene	91-20-3	1	U	1	0.81

Sample Description: S11-SS03-0002-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499040
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 09:20 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

30002 SDG#: DHR08-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.81
10949	Styrene	100-42-5	1	U	1	0.81
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.81
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.81
10949	Tetrachloroethene	127-18-4	11		1	0.81
10949	Toluene	108-88-3	1	U	1	0.81
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.81
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.81
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.81
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.81
10949	Trichloroethene	79-01-6	1	U	1	0.81
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.81
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.81
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.81
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.81
10949	Vinyl Acetate	108-05-4	2	U	2	0.81
10949	Vinyl Chloride	75-01-4	1	U	1	0.81
10949	m+p-Xylene	179601-23-1	1	U	1	0.81
10949	o-Xylene	95-47-6	1	U	1	0.81
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	20	U	20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	81	U	81	1
10727	Di-n-butylphthalate	84-74-2	81	U	81	1
10727	Carbazole	86-74-8	20	U	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	8	U	8	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	20	U	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1
10727	Diethylphthalate	84-66-2	81	U	81	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	81	U	81	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1

Sample Description: S11-SS03-0002-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499040
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 09:20 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

30002 SDG#: DHR08-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	400	U	400	1
10727	2,4-Dinitrotoluene	121-14-2	81	U	81	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	81	U	81	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	40	U	40	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	81	U	81	1
10727	4-Nitroaniline	100-01-6	81	U	81	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	81	U	81	1
10727	Pentachlorophenol	87-86-5	40	U	40	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	20	U	20	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	168		0.0212	1
06949	Cadmium	7440-43-9	0.887		0.0235	1
06951	Chromium	7440-47-3	24.5		0.165	1
06955	Lead	7439-92-1	16.3		0.259	1
06936	Selenium	7782-49-2	0.799	U	0.799	1
06966	Silver	7440-22-4	0.0976	U	0.0976	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	12.0		0.0959	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0167	J	0.0083	1

Lancaster Laboratories

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Analysis Report

Sample Description: S11-SS03-0002-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499040
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 09:20 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

30002 SDG#: DHR08-05

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	17.4	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113541AA	12/20/2011 18:15	Emily R Styer	0.81
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134826436	12/14/2011 13:46	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134826436	12/14/2011 13:47	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134826436	12/14/2011 13:46	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11349SLA026	12/16/2011 08:12	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11349SLA026	12/15/2011 15:30	David S Schrum	1
06946	Barium	SW-846 6010B	1	113495708001	12/19/2011 13:27	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113495708001	12/19/2011 13:27	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113495708001	12/19/2011 13:27	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113495708001	12/19/2011 13:27	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113495708001	12/20/2011 11:18	Joanne M Gates	1
06966	Silver	SW-846 6010B	1	113495708001	12/19/2011 13:27	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113491026001A	12/21/2011 11:30	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113495711001	12/16/2011 06:36	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113495708001	12/15/2011 21:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113491026001	12/15/2011 21:27	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113495711001	12/15/2011 23:15	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11350820005A	12/16/2011 19:06	Scott W Freisher	1

Lancaster Laboratories

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Analysis Report

Sample Description: S11-SS03-0305-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499041
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 09:25 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

30305 SDG#: DHR08-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	32		7	0.84
10949	Benzene	71-43-2	0.5	U	0.5	0.84
10949	Bromobenzene	108-86-1	1	U	1	0.84
10949	Bromochloromethane	74-97-5	1	U	1	0.84
10949	Bromodichloromethane	75-27-4	1	U	1	0.84
10949	Bromoform	75-25-2	1	U	1	0.84
10949	Bromomethane	74-83-9	2	U	2	0.84
10949	2-Butanone	78-93-3	4	U	4	0.84
10949	n-Butylbenzene	104-51-8	1	U	1	0.84
10949	sec-Butylbenzene	135-98-8	1	U	1	0.84
10949	tert-Butylbenzene	98-06-6	1	U	1	0.84
10949	Carbon Disulfide	75-15-0	1	U	1	0.84
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.84
10949	Chlorobenzene	108-90-7	1	U	1	0.84
10949	Chloroethane	75-00-3	2	U	2	0.84
10949	Chloroform	67-66-3	1	U	1	0.84
10949	Chloromethane	74-87-3	2	U	2	0.84
10949	2-Chlorotoluene	95-49-8	1	U	1	0.84
10949	4-Chlorotoluene	106-43-4	1	U	1	0.84
10949	Cyclohexane	110-82-7	1	U	1	0.84
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.84
10949	Dibromochloromethane	124-48-1	1	U	1	0.84
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.84
10949	Dibromomethane	74-95-3	1	U	1	0.84
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.84
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.84
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.84
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.84
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.84
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.84
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.84
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.84
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.84
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.84
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.84
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.84
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.84
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.84
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.84
10949	Ethylbenzene	100-41-4	1	U	1	0.84
10949	Freon 113	76-13-1	2	U	2	0.84
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.84
10949	2-Hexanone	591-78-6	3	U	3	0.84
10949	Isopropylbenzene	98-82-8	1	U	1	0.84
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.84
10949	Methyl Acetate	79-20-9	2	U	2	0.84
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.84
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.84
10949	Methylcyclohexane	108-87-2	1	U	1	0.84
10949	Methylene Chloride	75-09-2	2	U	2	0.84
10949	Naphthalene	91-20-3	1	U	1	0.84

Sample Description: S11-SS03-0305-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499041
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 09:25 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

30305 SDG#: DHR08-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.84
10949	Styrene	100-42-5	1	U	1	0.84
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.84
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.84
10949	Tetrachloroethene	127-18-4	2	J	1	0.84
10949	Toluene	108-88-3	1	U	1	0.84
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.84
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.84
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.84
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.84
10949	Trichloroethene	79-01-6	1	U	1	0.84
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.84
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.84
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.84
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.84
10949	Vinyl Acetate	108-05-4	2	U	2	0.84
10949	Vinyl Chloride	75-01-4	1	U	1	0.84
10949	m+p-Xylene	179601-23-1	1	U	1	0.84
10949	o-Xylene	95-47-6	1	U	1	0.84
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	20	U	20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	81	U	81	1
10727	Di-n-butylphthalate	84-74-2	81	U	81	1
10727	Carbazole	86-74-8	20	U	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	20	U	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1
10727	Diethylphthalate	84-66-2	81	U	81	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	81	U	81	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1

Sample Description: S11-SS03-0305-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499041
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 09:25 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

30305 SDG#: DHR08-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	410	U	410	1
10727	2,4-Dinitrotoluene	121-14-2	81	U	81	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	81	U	81	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	41	U	41	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	81	U	81	1
10727	4-Nitroaniline	100-01-6	81	U	81	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	81	U	81	1
10727	Pentachlorophenol	87-86-5	41	U	41	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	20	U	20	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	115		0.0213	1
06949	Cadmium	7440-43-9	0.963		0.0237	1
06951	Chromium	7440-47-3	22.0		0.166	1
06955	Lead	7439-92-1	13.9		0.261	1
06936	Selenium	7782-49-2	0.806	U	0.806	1
06966	Silver	7440-22-4	0.0984	U	0.0984	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	14.5		0.0967	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0314	J	0.0081	1

Lancaster Laboratories

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Analysis Report

Sample Description: S11-SS03-0305-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499041
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 09:25 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

30305 SDG#: DHR08-06

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	18.1	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113541AA	12/20/2011 18:38	Emily R Styer	0.84
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134826436	12/14/2011 13:48	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134826436	12/14/2011 13:49	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134826436	12/14/2011 13:48	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11349SLA026	12/16/2011 08:37	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11349SLA026	12/15/2011 15:30	David S Schrum	1
06946	Barium	SW-846 6010B	1	113495708001	12/19/2011 13:30	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113495708001	12/19/2011 13:30	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113495708001	12/19/2011 13:30	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113495708001	12/19/2011 13:30	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113495708001	12/19/2011 13:30	Eric L Eby	1
06966	Silver	SW-846 6010B	1	113495708001	12/19/2011 13:30	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113491026001A	12/21/2011 11:32	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113495711001	12/16/2011 06:40	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113495708001	12/15/2011 21:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113491026001	12/15/2011 21:27	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113495711001	12/15/2011 23:15	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11350820005A	12/16/2011 19:06	Scott W Freisher	1

Lancaster Laboratories

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Analysis Report

Sample Description: S11-SS03-0810-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499042
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 09:30 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

30810 SDG#: DHR08-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	38		8	0.95
10949	Benzene	71-43-2	0.6	U	0.6	0.95
10949	Bromobenzene	108-86-1	1	U	1	0.95
10949	Bromochloromethane	74-97-5	1	U	1	0.95
10949	Bromodichloromethane	75-27-4	1	U	1	0.95
10949	Bromoform	75-25-2	1	U	1	0.95
10949	Bromomethane	74-83-9	2	U	2	0.95
10949	2-Butanone	78-93-3	6	J	5	0.95
10949	n-Butylbenzene	104-51-8	1	U	1	0.95
10949	sec-Butylbenzene	135-98-8	1	U	1	0.95
10949	tert-Butylbenzene	98-06-6	1	U	1	0.95
10949	Carbon Disulfide	75-15-0	1	U	1	0.95
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.95
10949	Chlorobenzene	108-90-7	1	U	1	0.95
10949	Chloroethane	75-00-3	2	U	2	0.95
10949	Chloroform	67-66-3	1	U	1	0.95
10949	Chloromethane	74-87-3	2	U	2	0.95
10949	2-Chlorotoluene	95-49-8	1	U	1	0.95
10949	4-Chlorotoluene	106-43-4	1	U	1	0.95
10949	Cyclohexane	110-82-7	1	U	1	0.95
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.95
10949	Dibromochloromethane	124-48-1	1	U	1	0.95
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.95
10949	Dibromomethane	74-95-3	1	U	1	0.95
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.95
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.95
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.95
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.95
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.95
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.95
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.95
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.95
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.95
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.95
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.95
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.95
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.95
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.95
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.95
10949	Ethylbenzene	100-41-4	1	U	1	0.95
10949	Freon 113	76-13-1	2	U	2	0.95
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.95
10949	2-Hexanone	591-78-6	4	U	4	0.95
10949	Isopropylbenzene	98-82-8	1	U	1	0.95
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.95
10949	Methyl Acetate	79-20-9	2	U	2	0.95
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.6	U	0.6	0.95
10949	4-Methyl-2-pentanone	108-10-1	4	U	4	0.95
10949	Methylcyclohexane	108-87-2	1	U	1	0.95
10949	Methylene Chloride	75-09-2	2	U	2	0.95
10949	Naphthalene	91-20-3	1	U	1	0.95

Sample Description: S11-SS03-0810-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499042
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 09:30 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

30810 SDG#: DHR08-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.95
10949	Styrene	100-42-5	1	U	1	0.95
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.95
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.95
10949	Tetrachloroethene	127-18-4	3	J	1	0.95
10949	Toluene	108-88-3	1	U	1	0.95
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.95
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.95
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.95
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.95
10949	Trichloroethene	79-01-6	1	U	1	0.95
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.95
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.95
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.95
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.95
10949	Vinyl Acetate	108-05-4	2	U	2	0.95
10949	Vinyl Chloride	75-01-4	1	U	1	0.95
10949	m+p-Xylene	179601-23-1	1	U	1	0.95
10949	o-Xylene	95-47-6	1	U	1	0.95
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	210	U	210	1
10727	1,1'-Biphenyl	92-52-4	21	U	21	1
10727	4-Bromophenyl-phenylether	101-55-3	21	U	21	1
10727	Butylbenzylphthalate	85-68-7	83	U	83	1
10727	Di-n-butylphthalate	84-74-2	83	U	83	1
10727	Carbazole	86-74-8	21	U	21	1
10727	4-Chloro-3-methylphenol	59-50-7	21	U	21	1
10727	4-Chloroaniline	106-47-8	21	U	21	1
10727	bis(2-Chloroethoxy)methane	111-91-1	21	U	21	1
10727	bis(2-Chloroethyl)ether	111-44-4	21	U	21	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	21	U	21	1
10727	4-Chlorophenyl-phenylether	7005-72-3	21	U	21	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	21	U	21	1
10727	3,3'-Dichlorobenzidine	91-94-1	130	U	130	1
10727	2,4-Dichlorophenol	120-83-2	21	U	21	1
10727	Diethylphthalate	84-66-2	83	U	83	1
10727	2,4-Dimethylphenol	105-67-9	21	U	21	1
10727	Dimethylphthalate	131-11-3	83	U	83	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	210	U	210	1

Sample Description: S11-SS03-0810-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499042
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 09:30 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

30810 SDG#: DHR08-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	420	U	420	1
10727	2,4-Dinitrotoluene	121-14-2	83	U	83	1
10727	2,6-Dinitrotoluene	606-20-2	21	U	21	1
10727	1,4-Dioxane	123-91-1	130	U	130	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	83	U	83	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	210	U	210	1
10727	Hexachloroethane	67-72-1	42	U	42	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	21	U	21	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	21	U	21	1
10727	4-Methylphenol	106-44-5	21	U	21	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	21	U	21	1
10727	3-Nitroaniline	99-09-2	83	U	83	1
10727	4-Nitroaniline	100-01-6	83	U	83	1
10727	Nitrobenzene	98-95-3	21	U	21	1
10727	2-Nitrophenol	88-75-5	21	U	21	1
10727	4-Nitrophenol	100-02-7	210	U	210	1
10727	N-Nitroso-di-n-propylamine	621-64-7	21	U	21	1
10727	N-Nitrosodiphenylamine	86-30-6	21	U	21	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	83	U	83	1
10727	Pentachlorophenol	87-86-5	42	U	42	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	21	U	21	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	21	U	21	1
10727	2,4,6-Trichlorophenol	88-06-2	21	U	21	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	65.3		0.0221	1
06949	Cadmium	7440-43-9	0.793		0.0245	1
06951	Chromium	7440-47-3	13.9		0.172	1
06955	Lead	7439-92-1	11.9		0.270	1
06936	Selenium	7782-49-2	0.833	U	0.833	1
06966	Silver	7440-22-4	0.102	U	0.102	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	12.6		0.0971	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0157	J	0.0086	1

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Analysis Report

Sample Description: S11-SS03-0810-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499042
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 09:30 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

30810 SDG#: DHR08-07

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	20.0	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113541AA	12/20/2011 19:01	Emily R Styer	0.95
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134826436	12/14/2011 13:50	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134826436	12/14/2011 13:51	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134826436	12/14/2011 13:50	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11349SLA026	12/16/2011 09:03	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11349SLA026	12/15/2011 15:30	David S Schrum	1
06946	Barium	SW-846 6010B	1	113495708001	12/19/2011 13:34	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113495708001	12/19/2011 13:34	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113495708001	12/19/2011 13:34	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113495708001	12/19/2011 13:34	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113495708001	12/19/2011 13:34	Eric L Eby	1
06966	Silver	SW-846 6010B	1	113495708001	12/19/2011 13:34	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113491026001A	12/21/2011 11:33	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113495711001	12/16/2011 06:42	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113495708001	12/15/2011 21:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113491026001	12/15/2011 21:27	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113495711001	12/15/2011 23:15	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11350820005A	12/16/2011 19:06	Scott W Freisher	1

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Analysis Report

Sample Description: S11-SS02-0002-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499043
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 09:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

20002 SDG#: DHR08-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	71		7	0.78
10949	Benzene	71-43-2	0.5	U	0.5	0.78
10949	Bromobenzene	108-86-1	1	U	1	0.78
10949	Bromochloromethane	74-97-5	1	U	1	0.78
10949	Bromodichloromethane	75-27-4	1	U	1	0.78
10949	Bromoform	75-25-2	1	U	1	0.78
10949	Bromomethane	74-83-9	2	U	2	0.78
10949	2-Butanone	78-93-3	5	J	4	0.78
10949	n-Butylbenzene	104-51-8	1	U	1	0.78
10949	sec-Butylbenzene	135-98-8	1	U	1	0.78
10949	tert-Butylbenzene	98-06-6	1	U	1	0.78
10949	Carbon Disulfide	75-15-0	1	U	1	0.78
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.78
10949	Chlorobenzene	108-90-7	1	U	1	0.78
10949	Chloroethane	75-00-3	2	U	2	0.78
10949	Chloroform	67-66-3	1	U	1	0.78
10949	Chloromethane	74-87-3	2	U	2	0.78
10949	2-Chlorotoluene	95-49-8	1	U	1	0.78
10949	4-Chlorotoluene	106-43-4	1	U	1	0.78
10949	Cyclohexane	110-82-7	1	U	1	0.78
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.78
10949	Dibromochloromethane	124-48-1	1	U	1	0.78
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.78
10949	Dibromomethane	74-95-3	1	U	1	0.78
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.78
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.78
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.78
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.78
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.78
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.78
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.78
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.78
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.78
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.78
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.78
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.78
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.78
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.78
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.78
10949	Ethylbenzene	100-41-4	1	U	1	0.78
10949	Freon 113	76-13-1	2	U	2	0.78
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.78
10949	2-Hexanone	591-78-6	3	U	3	0.78
10949	Isopropylbenzene	98-82-8	1	U	1	0.78
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.78
10949	Methyl Acetate	79-20-9	2	U	2	0.78
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.78
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.78
10949	Methylcyclohexane	108-87-2	1	U	1	0.78
10949	Methylene Chloride	75-09-2	2	U	2	0.78
10949	Naphthalene	91-20-3	1	U	1	0.78

Sample Description: S11-SS02-0002-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499043
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 09:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

20002 SDG#: DHR08-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.78
10949	Styrene	100-42-5	1	U	1	0.78
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.78
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.78
10949	Tetrachloroethene	127-18-4	1	U	1	0.78
10949	Toluene	108-88-3	1	U	1	0.78
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.78
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.78
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.78
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.78
10949	Trichloroethene	79-01-6	1	U	1	0.78
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.78
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.78
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.78
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.78
10949	Vinyl Acetate	108-05-4	2	U	2	0.78
10949	Vinyl Chloride	75-01-4	1	U	1	0.78
10949	m+p-Xylene	179601-23-1	1	U	1	0.78
10949	o-Xylene	95-47-6	1	U	1	0.78
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	20	U	20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	82	U	82	1
10727	Di-n-butylphthalate	84-74-2	82	U	82	1
10727	Carbazole	86-74-8	20	U	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	20	U	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1
10727	Diethylphthalate	84-66-2	82	U	82	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	82	U	82	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1

Sample Description: S11-SS02-0002-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499043
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 09:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

20002 SDG#: DHR08-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	410	U	410	1
10727	2,4-Dinitrotoluene	121-14-2	82	U	82	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	82	U	82	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	41	U	41	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	82	U	82	1
10727	4-Nitroaniline	100-01-6	82	U	82	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	82	U	82	1
10727	Pentachlorophenol	87-86-5	41	U	41	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	20	U	20	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	112		0.0216	1
06949	Cadmium	7440-43-9	0.925		0.0240	1
06951	Chromium	7440-47-3	24.4		0.168	1
06955	Lead	7439-92-1	15.4		0.264	1
06936	Selenium	7782-49-2	0.817	U	0.817	1
06966	Silver	7440-22-4	0.0997	U	0.0997	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	13.9		0.0961	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0132	J	0.0081	1

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Analysis Report

Sample Description: S11-SS02-0002-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499043
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 09:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

20002 SDG#: DHR08-08

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	18.4	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113541AA	12/20/2011 19:24	Emily R Styer	0.78
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134826436	12/14/2011 13:52	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134826436	12/14/2011 13:53	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134826436	12/14/2011 13:52	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11349SLA026	12/16/2011 09:28	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11349SLA026	12/15/2011 15:30	David S Schrum	1
06946	Barium	SW-846 6010B	1	113495708001	12/19/2011 13:37	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113495708001	12/19/2011 13:37	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113495708001	12/19/2011 13:37	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113495708001	12/19/2011 13:37	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113495708001	12/19/2011 13:37	Eric L Eby	1
06966	Silver	SW-846 6010B	1	113495708001	12/19/2011 13:37	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113491026001A	12/21/2011 11:35	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113495711001	12/16/2011 06:43	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113495708001	12/15/2011 21:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113491026001	12/15/2011 21:27	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113495711001	12/15/2011 23:15	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11350820005A	12/16/2011 19:06	Scott W Freisher	1

Lancaster Laboratories

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Analysis Report

Sample Description: HGR-121311-FD01 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499044
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HGRD- SDG#: DHR08-09FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	47		7	0.86
10949	Benzene	71-43-2	0.5	U	0.5	0.86
10949	Bromobenzene	108-86-1	1	U	1	0.86
10949	Bromochloromethane	74-97-5	1	U	1	0.86
10949	Bromodichloromethane	75-27-4	1	U	1	0.86
10949	Bromoform	75-25-2	1	U	1	0.86
10949	Bromomethane	74-83-9	2	U	2	0.86
10949	2-Butanone	78-93-3	5	J	4	0.86
10949	n-Butylbenzene	104-51-8	1	U	1	0.86
10949	sec-Butylbenzene	135-98-8	1	U	1	0.86
10949	tert-Butylbenzene	98-06-6	1	U	1	0.86
10949	Carbon Disulfide	75-15-0	1	U	1	0.86
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.86
10949	Chlorobenzene	108-90-7	1	U	1	0.86
10949	Chloroethane	75-00-3	2	U	2	0.86
10949	Chloroform	67-66-3	1	U	1	0.86
10949	Chloromethane	74-87-3	2	U	2	0.86
10949	2-Chlorotoluene	95-49-8	1	U	1	0.86
10949	4-Chlorotoluene	106-43-4	1	U	1	0.86
10949	Cyclohexane	110-82-7	1	U	1	0.86
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.86
10949	Dibromochloromethane	124-48-1	1	U	1	0.86
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.86
10949	Dibromomethane	74-95-3	1	U	1	0.86
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.86
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.86
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.86
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.86
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.86
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.86
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.86
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.86
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.86
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.86
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.86
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.86
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.86
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.86
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.86
10949	Ethylbenzene	100-41-4	1	U	1	0.86
10949	Freon 113	76-13-1	2	U	2	0.86
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.86
10949	2-Hexanone	591-78-6	3	U	3	0.86
10949	Isopropylbenzene	98-82-8	1	U	1	0.86
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.86
10949	Methyl Acetate	79-20-9	2	U	2	0.86
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.86
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.86
10949	Methylcyclohexane	108-87-2	1	U	1	0.86
10949	Methylene Chloride	75-09-2	2	U	2	0.86
10949	Naphthalene	91-20-3	1	U	1	0.86

Sample Description: HGR-121311-FD01 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499044
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HGRD- SDG#: DHR08-09FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.86
10949	Styrene	100-42-5	1	U	1	0.86
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.86
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.86
10949	Tetrachloroethene	127-18-4	7		1	0.86
10949	Toluene	108-88-3	1	U	1	0.86
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.86
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.86
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.86
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.86
10949	Trichloroethene	79-01-6	1	U	1	0.86
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.86
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.86
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.86
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.86
10949	Vinyl Acetate	108-05-4	2	U	2	0.86
10949	Vinyl Chloride	75-01-4	1	U	1	0.86
10949	m+p-Xylene	179601-23-1	1	U	1	0.86
10949	o-Xylene	95-47-6	1	U	1	0.86
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	5	J	4	1
10727	Benzo(a)pyrene	50-32-8	4	J	4	1
10727	Benzo(b)fluoranthene	205-99-2	5	J	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	20	U	20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	80	U	80	1
10727	Di-n-butylphthalate	84-74-2	80	U	80	1
10727	Carbazole	86-74-8	20	U	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	8	U	8	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	5	J	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	20	U	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1
10727	Diethylphthalate	84-66-2	80	U	80	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	80	U	80	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1

Sample Description: HGR-121311-FD01 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499044
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HGRD- SDG#: DHR08-09FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	400	U	400	1
10727	2,4-Dinitrotoluene	121-14-2	80	U	80	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	80	U	80	1
10727	Fluoranthene	206-44-0	8	J	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	40	U	40	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	80	U	80	1
10727	4-Nitroaniline	100-01-6	80	U	80	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	80	U	80	1
10727	Pentachlorophenol	87-86-5	40	U	40	1
10727	Phenanthrene	85-01-8	6	J	4	1
10727	Phenol	108-95-2	20	U	20	1
10727	Pyrene	129-00-0	8	J	4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	187		0.0208	1
06949	Cadmium	7440-43-9	0.809		0.0231	1
06951	Chromium	7440-47-3	20.5		0.162	1
06955	Lead	7439-92-1	13.8		0.255	1
06936	Selenium	7782-49-2	1.35	J	0.787	1
06966	Silver	7440-22-4	0.0960	U	0.0960	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	11.7		0.0944	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0161	J	0.0080	1

Lancaster Laboratories

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Analysis Report

Sample Description: HGR-121311-FD01 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499044
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HGRD- SDG#: DHR08-09FD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	16.9	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113541AA	12/20/2011 19:47	Emily R Styer	0.86
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134826436	12/14/2011 13:55	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134826436	12/14/2011 13:55	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134826436	12/14/2011 13:54	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11349SLA026	12/16/2011 09:54	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11349SLA026	12/15/2011 15:30	David S Schrum	1
06946	Barium	SW-846 6010B	1	113495708001	12/19/2011 13:41	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113495708001	12/19/2011 13:41	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113495708001	12/19/2011 13:41	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113495708001	12/19/2011 13:41	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113495708001	12/20/2011 11:22	Joanne M Gates	1
06966	Silver	SW-846 6010B	1	113495708001	12/19/2011 13:41	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113491026001A	12/21/2011 11:37	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113495711001	12/16/2011 06:44	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113495708001	12/15/2011 21:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113491026001	12/15/2011 21:27	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113495711001	12/15/2011 23:15	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11350820005A	12/16/2011 19:06	Scott W Freisher	1

Lancaster Laboratories

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Analysis Report

Sample Description: S11-SS02-0305-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499045
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:00 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

20305 SDG#: DHR08-10

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	37		7	0.86
10949	Benzene	71-43-2	0.7	J	0.5	0.86
10949	Bromobenzene	108-86-1	1	U	1	0.86
10949	Bromochloromethane	74-97-5	1	U	1	0.86
10949	Bromodichloromethane	75-27-4	1	U	1	0.86
10949	Bromoform	75-25-2	1	U	1	0.86
10949	Bromomethane	74-83-9	2	U	2	0.86
10949	2-Butanone	78-93-3	5	J	4	0.86
10949	n-Butylbenzene	104-51-8	1	U	1	0.86
10949	sec-Butylbenzene	135-98-8	1	U	1	0.86
10949	tert-Butylbenzene	98-06-6	1	U	1	0.86
10949	Carbon Disulfide	75-15-0	1	U	1	0.86
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.86
10949	Chlorobenzene	108-90-7	1	U	1	0.86
10949	Chloroethane	75-00-3	2	U	2	0.86
10949	Chloroform	67-66-3	1	U	1	0.86
10949	Chloromethane	74-87-3	2	U	2	0.86
10949	2-Chlorotoluene	95-49-8	1	U	1	0.86
10949	4-Chlorotoluene	106-43-4	1	U	1	0.86
10949	Cyclohexane	110-82-7	1	J	1	0.86
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.86
10949	Dibromochloromethane	124-48-1	1	U	1	0.86
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.86
10949	Dibromomethane	74-95-3	1	U	1	0.86
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.86
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.86
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.86
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.86
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.86
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.86
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.86
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.86
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.86
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.86
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.86
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.86
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.86
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.86
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.86
10949	Ethylbenzene	100-41-4	1	U	1	0.86
10949	Freon 113	76-13-1	2	U	2	0.86
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.86
10949	2-Hexanone	591-78-6	3	U	3	0.86
10949	Isopropylbenzene	98-82-8	1	U	1	0.86
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.86
10949	Methyl Acetate	79-20-9	2	U	2	0.86
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.86
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.86
10949	Methylcyclohexane	108-87-2	1	J	1	0.86
10949	Methylene Chloride	75-09-2	2	U	2	0.86
10949	Naphthalene	91-20-3	1	U	1	0.86

Sample Description: S11-SS02-0305-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499045
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:00 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

20305 SDG#: DHR08-10

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.86
10949	Styrene	100-42-5	1	U	1	0.86
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.86
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.86
10949	Tetrachloroethene	127-18-4	1	U	1	0.86
10949	Toluene	108-88-3	2	J	1	0.86
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.86
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.86
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.86
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.86
10949	Trichloroethene	79-01-6	1	U	1	0.86
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.86
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.86
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.86
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.86
10949	Vinyl Acetate	108-05-4	2	U	2	0.86
10949	Vinyl Chloride	75-01-4	1	U	1	0.86
10949	m+p-Xylene	179601-23-1	1	U	1	0.86
10949	o-Xylene	95-47-6	1	U	1	0.86
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	210	U	210	1
10727	1,1'-Biphenyl	92-52-4	21	U	21	1
10727	4-Bromophenyl-phenylether	101-55-3	21	U	21	1
10727	Butylbenzylphthalate	85-68-7	83	U	83	1
10727	Di-n-butylphthalate	84-74-2	83	U	83	1
10727	Carbazole	86-74-8	21	U	21	1
10727	4-Chloro-3-methylphenol	59-50-7	21	U	21	1
10727	4-Chloroaniline	106-47-8	21	U	21	1
10727	bis(2-Chloroethoxy)methane	111-91-1	21	U	21	1
10727	bis(2-Chloroethyl)ether	111-44-4	21	U	21	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	21	U	21	1
10727	4-Chlorophenyl-phenylether	7005-72-3	21	U	21	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	21	U	21	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	21	U	21	1
10727	Diethylphthalate	84-66-2	83	U	83	1
10727	2,4-Dimethylphenol	105-67-9	21	U	21	1
10727	Dimethylphthalate	131-11-3	83	U	83	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	210	U	210	1

Sample Description: S11-SS02-0305-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499045
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:00 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

20305 SDG#: DHR08-10

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	410	U	410	1
10727	2,4-Dinitrotoluene	121-14-2	83	U	83	1
10727	2,6-Dinitrotoluene	606-20-2	21	U	21	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	83	U	83	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	210	U	210	1
10727	Hexachloroethane	67-72-1	41	U	41	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	21	U	21	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	21	U	21	1
10727	4-Methylphenol	106-44-5	21	U	21	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	21	U	21	1
10727	3-Nitroaniline	99-09-2	83	U	83	1
10727	4-Nitroaniline	100-01-6	83	U	83	1
10727	Nitrobenzene	98-95-3	21	U	21	1
10727	2-Nitrophenol	88-75-5	21	U	21	1
10727	4-Nitrophenol	100-02-7	210	U	210	1
10727	N-Nitroso-di-n-propylamine	621-64-7	21	U	21	1
10727	N-Nitrosodiphenylamine	86-30-6	21	U	21	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	83	U	83	1
10727	Pentachlorophenol	87-86-5	41	U	41	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	21	U	21	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	21	U	21	1
10727	2,4,6-Trichlorophenol	88-06-2	21	U	21	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	90.5		0.0216	1
06949	Cadmium	7440-43-9	0.950		0.0240	1
06951	Chromium	7440-47-3	23.9		0.168	1
06955	Lead	7439-92-1	12.8		0.264	1
06936	Selenium	7782-49-2	0.817	U	0.817	1
06966	Silver	7440-22-4	0.0997	U	0.0997	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	14.3		0.0971	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0294	J	0.0081	1

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Analysis Report

Sample Description: S11-SS02-0305-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499045
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:00 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

20305 SDG#: DHR08-10

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	19.2	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113541AA	12/20/2011 20:09	Emily R Styer	0.86
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134826436	12/14/2011 13:57	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134826436	12/14/2011 13:57	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134826436	12/14/2011 13:56	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11349SLA026	12/16/2011 10:20	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11349SLA026	12/15/2011 15:30	David S Schrum	1
06946	Barium	SW-846 6010B	1	113495708001	12/19/2011 13:45	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113495708001	12/19/2011 13:45	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113495708001	12/19/2011 13:45	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113495708001	12/19/2011 13:45	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113495708001	12/20/2011 11:26	Joanne M Gates	1
06966	Silver	SW-846 6010B	1	113495708001	12/19/2011 13:45	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113491026001A	12/21/2011 11:38	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113495711001	12/16/2011 06:46	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113495708001	12/15/2011 21:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113491026001	12/15/2011 21:27	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113495711001	12/15/2011 23:15	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11350820005B	12/16/2011 19:06	Scott W Freisher	1

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Analysis Report

Sample Description: S11-SS02-0810-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499046
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:05 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

20810 SDG#: DHR08-11

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	29		8	0.87
10949	Benzene	71-43-2	0.5	U	0.5	0.87
10949	Bromobenzene	108-86-1	1	U	1	0.87
10949	Bromochloromethane	74-97-5	1	U	1	0.87
10949	Bromodichloromethane	75-27-4	1	U	1	0.87
10949	Bromoform	75-25-2	1	U	1	0.87
10949	Bromomethane	74-83-9	2	U	2	0.87
10949	2-Butanone	78-93-3	4	U	4	0.87
10949	n-Butylbenzene	104-51-8	1	U	1	0.87
10949	sec-Butylbenzene	135-98-8	1	U	1	0.87
10949	tert-Butylbenzene	98-06-6	1	U	1	0.87
10949	Carbon Disulfide	75-15-0	1	U	1	0.87
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.87
10949	Chlorobenzene	108-90-7	1	U	1	0.87
10949	Chloroethane	75-00-3	2	U	2	0.87
10949	Chloroform	67-66-3	1	U	1	0.87
10949	Chloromethane	74-87-3	2	U	2	0.87
10949	2-Chlorotoluene	95-49-8	1	U	1	0.87
10949	4-Chlorotoluene	106-43-4	1	U	1	0.87
10949	Cyclohexane	110-82-7	1	U	1	0.87
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.87
10949	Dibromochloromethane	124-48-1	1	U	1	0.87
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.87
10949	Dibromomethane	74-95-3	1	U	1	0.87
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.87
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.87
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.87
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.87
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.87
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.87
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.87
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.87
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.87
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.87
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.87
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.87
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.87
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.87
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.87
10949	Ethylbenzene	100-41-4	1	U	1	0.87
10949	Freon 113	76-13-1	2	U	2	0.87
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.87
10949	2-Hexanone	591-78-6	3	U	3	0.87
10949	Isopropylbenzene	98-82-8	1	U	1	0.87
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.87
10949	Methyl Acetate	79-20-9	2	U	2	0.87
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.87
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.87
10949	Methylcyclohexane	108-87-2	1	U	1	0.87
10949	Methylene Chloride	75-09-2	2	U	2	0.87
10949	Naphthalene	91-20-3	1	U	1	0.87

Sample Description: S11-SS02-0810-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499046
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:05 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

20810 SDG#: DHR08-11

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.87
10949	Styrene	100-42-5	1	U	1	0.87
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.87
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.87
10949	Tetrachloroethene	127-18-4	1	U	1	0.87
10949	Toluene	108-88-3	1	U	1	0.87
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.87
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.87
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.87
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.87
10949	Trichloroethene	79-01-6	1	U	1	0.87
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.87
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.87
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.87
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.87
10949	Vinyl Acetate	108-05-4	2	U	2	0.87
10949	Vinyl Chloride	75-01-4	1	U	1	0.87
10949	m+p-Xylene	179601-23-1	1	U	1	0.87
10949	o-Xylene	95-47-6	1	U	1	0.87
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	210	U	210	1
10727	1,1'-Biphenyl	92-52-4	21	U	21	1
10727	4-Bromophenyl-phenylether	101-55-3	21	U	21	1
10727	Butylbenzylphthalate	85-68-7	83	U	83	1
10727	Di-n-butylphthalate	84-74-2	83	U	83	1
10727	Carbazole	86-74-8	21	U	21	1
10727	4-Chloro-3-methylphenol	59-50-7	21	U	21	1
10727	4-Chloroaniline	106-47-8	21	U	21	1
10727	bis(2-Chloroethoxy)methane	111-91-1	21	U	21	1
10727	bis(2-Chloroethyl)ether	111-44-4	21	U	21	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	21	U	21	1
10727	4-Chlorophenyl-phenylether	7005-72-3	21	U	21	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	21	U	21	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	21	U	21	1
10727	Diethylphthalate	84-66-2	83	U	83	1
10727	2,4-Dimethylphenol	105-67-9	21	U	21	1
10727	Dimethylphthalate	131-11-3	83	U	83	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	210	U	210	1

Sample Description: S11-SS02-0810-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499046
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:05 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

20810 SDG#: DHR08-11

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	420	U	420	1
10727	2,4-Dinitrotoluene	121-14-2	83	U	83	1
10727	2,6-Dinitrotoluene	606-20-2	21	U	21	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	83	U	83	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	210	U	210	1
10727	Hexachloroethane	67-72-1	42	U	42	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	21	U	21	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	21	U	21	1
10727	4-Methylphenol	106-44-5	21	U	21	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	21	U	21	1
10727	3-Nitroaniline	99-09-2	83	U	83	1
10727	4-Nitroaniline	100-01-6	83	U	83	1
10727	Nitrobenzene	98-95-3	21	U	21	1
10727	2-Nitrophenol	88-75-5	21	U	21	1
10727	4-Nitrophenol	100-02-7	210	U	210	1
10727	N-Nitroso-di-n-propylamine	621-64-7	21	U	21	1
10727	N-Nitrosodiphenylamine	86-30-6	21	U	21	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	83	U	83	1
10727	Pentachlorophenol	87-86-5	42	U	42	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	21	U	21	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	21	U	21	1
10727	2,4,6-Trichlorophenol	88-06-2	21	U	21	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	77.3		0.0222	1
06949	Cadmium	7440-43-9	0.808		0.0247	1
06951	Chromium	7440-47-3	15.5		0.173	1
06955	Lead	7439-92-1	10.8		0.272	1
06936	Selenium	7782-49-2	0.841	U	0.841	1
06966	Silver	7440-22-4	0.103	U	0.103	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	12.7		0.0970	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0205	J	0.0083	1

Sample Description: S11-SS02-0810-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499046
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:05 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

20810 SDG#: DHR08-11

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	19.9	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113541AA	12/20/2011 20:32	Emily R Styer	0.87
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134826436	12/14/2011 13:59	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134826436	12/14/2011 13:59	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134826436	12/14/2011 13:58	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11349SLA026	12/16/2011 10:45	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11349SLA026	12/15/2011 15:30	David S Schrum	1
06946	Barium	SW-846 6010B	1	113495708001	12/19/2011 13:48	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113495708001	12/19/2011 13:48	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113495708001	12/19/2011 13:48	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113495708001	12/19/2011 13:48	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113495708001	12/19/2011 13:48	Eric L Eby	1
06966	Silver	SW-846 6010B	1	113495708001	12/19/2011 13:48	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113491026001A	12/21/2011 11:40	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113495711001	12/16/2011 06:47	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113495708001	12/15/2011 21:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113491026001	12/15/2011 21:27	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113495711001	12/15/2011 23:15	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11350820005B	12/16/2011 19:06	Scott W Freisher	1

Lancaster Laboratories

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Analysis Report

Sample Description: S11-SS01-0002-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499047
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:20 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

10002 SDG#: DHR08-12

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	120		8	0.91
10949	Benzene	71-43-2	0.6	U	0.6	0.91
10949	Bromobenzene	108-86-1	1	U	1	0.91
10949	Bromochloromethane	74-97-5	1	U	1	0.91
10949	Bromodichloromethane	75-27-4	1	U	1	0.91
10949	Bromoform	75-25-2	1	U	1	0.91
10949	Bromomethane	74-83-9	2	U	2	0.91
10949	2-Butanone	78-93-3	18		4	0.91
10949	n-Butylbenzene	104-51-8	1	U	1	0.91
10949	sec-Butylbenzene	135-98-8	1	U	1	0.91
10949	tert-Butylbenzene	98-06-6	1	U	1	0.91
10949	Carbon Disulfide	75-15-0	1	J	1	0.91
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.91
10949	Chlorobenzene	108-90-7	1	U	1	0.91
10949	Chloroethane	75-00-3	2	U	2	0.91
10949	Chloroform	67-66-3	1	U	1	0.91
10949	Chloromethane	74-87-3	2	U	2	0.91
10949	2-Chlorotoluene	95-49-8	1	U	1	0.91
10949	4-Chlorotoluene	106-43-4	1	U	1	0.91
10949	Cyclohexane	110-82-7	1	U	1	0.91
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.91
10949	Dibromochloromethane	124-48-1	1	U	1	0.91
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.91
10949	Dibromomethane	74-95-3	1	U	1	0.91
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.91
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.91
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.91
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.91
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.91
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.91
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.91
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.91
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.91
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.91
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.91
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.91
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.91
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.91
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.91
10949	Ethylbenzene	100-41-4	1	U	1	0.91
10949	Freon 113	76-13-1	2	U	2	0.91
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.91
10949	2-Hexanone	591-78-6	3	U	3	0.91
10949	Isopropylbenzene	98-82-8	1	U	1	0.91
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.91
10949	Methyl Acetate	79-20-9	2	U	2	0.91
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.6	U	0.6	0.91
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.91
10949	Methylcyclohexane	108-87-2	1	U	1	0.91
10949	Methylene Chloride	75-09-2	2	U	2	0.91
10949	Naphthalene	91-20-3	1	U	1	0.91

Sample Description: S11-SS01-0002-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499047
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:20 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

10002 SDG#: DHR08-12

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.91
10949	Styrene	100-42-5	1	U	1	0.91
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.91
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.91
10949	Tetrachloroethene	127-18-4	5	J	1	0.91
10949	Toluene	108-88-3	1	U	1	0.91
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.91
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.91
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.91
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.91
10949	Trichloroethene	79-01-6	1	U	1	0.91
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.91
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.91
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.91
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.91
10949	Vinyl Acetate	108-05-4	2	U	2	0.91
10949	Vinyl Chloride	75-01-4	1	U	1	0.91
10949	m+p-Xylene	179601-23-1	1	U	1	0.91
10949	o-Xylene	95-47-6	1	U	1	0.91
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	20	U	20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	82	U	82	1
10727	Di-n-butylphthalate	84-74-2	82	U	82	1
10727	Carbazole	86-74-8	20	U	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	20	U	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1
10727	Diethylphthalate	84-66-2	82	U	82	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	82	U	82	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1

Sample Description: S11-SS01-0002-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499047
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:20 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

10002 SDG#: DHR08-12

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	410	U	410	1
10727	2,4-Dinitrotoluene	121-14-2	82	U	82	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	82	U	82	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	41	U	41	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	82	U	82	1
10727	4-Nitroaniline	100-01-6	82	U	82	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	82	U	82	1
10727	Pentachlorophenol	87-86-5	41	U	41	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	20	U	20	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	147		0.0215	1
06949	Cadmium	7440-43-9	0.970		0.0239	1
06951	Chromium	7440-47-3	24.0		0.167	1
06955	Lead	7439-92-1	16.0		0.262	1
06936	Selenium	7782-49-2	0.811	U	0.811	1
06966	Silver	7440-22-4	0.0990	U	0.0990	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	13.8		0.0954	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0178	J	0.0082	1

Lancaster Laboratories

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Analysis Report

Sample Description: S11-SS01-0002-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499047
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:20 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

10002 SDG#: DHR08-12

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	18.6	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113541AA	12/20/2011 20:55	Emily R Styer	0.91
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134826436	12/14/2011 14:01	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134826436	12/14/2011 14:01	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134826436	12/14/2011 14:01	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11349SLA026	12/16/2011 11:11	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11349SLA026	12/15/2011 15:30	David S Schrum	1
06946	Barium	SW-846 6010B	1	113495708001	12/19/2011 13:52	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113495708001	12/19/2011 13:52	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113495708001	12/19/2011 13:52	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113495708001	12/19/2011 13:52	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113495708001	12/20/2011 11:30	Joanne M Gates	1
06966	Silver	SW-846 6010B	1	113495708001	12/19/2011 13:52	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113491026001A	12/21/2011 11:41	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113495711001	12/16/2011 06:48	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113495708001	12/15/2011 21:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113491026001	12/15/2011 21:27	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113495711001	12/15/2011 23:15	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11350820005B	12/16/2011 19:06	Scott W Freisher	1

Lancaster Laboratories

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Analysis Report

Sample Description: S11-SS01-0308-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499048
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:25 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

10308 SDG#: DHR08-13

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	32		8	0.88
10949	Benzene	71-43-2	0.5	U	0.5	0.88
10949	Bromobenzene	108-86-1	1	U	1	0.88
10949	Bromochloromethane	74-97-5	1	U	1	0.88
10949	Bromodichloromethane	75-27-4	1	U	1	0.88
10949	Bromoform	75-25-2	1	U	1	0.88
10949	Bromomethane	74-83-9	2	U	2	0.88
10949	2-Butanone	78-93-3	4	U	4	0.88
10949	n-Butylbenzene	104-51-8	1	U	1	0.88
10949	sec-Butylbenzene	135-98-8	1	U	1	0.88
10949	tert-Butylbenzene	98-06-6	1	U	1	0.88
10949	Carbon Disulfide	75-15-0	1	U	1	0.88
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.88
10949	Chlorobenzene	108-90-7	1	U	1	0.88
10949	Chloroethane	75-00-3	2	U	2	0.88
10949	Chloroform	67-66-3	1	U	1	0.88
10949	Chloromethane	74-87-3	2	U	2	0.88
10949	2-Chlorotoluene	95-49-8	1	U	1	0.88
10949	4-Chlorotoluene	106-43-4	1	U	1	0.88
10949	Cyclohexane	110-82-7	1	U	1	0.88
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.88
10949	Dibromochloromethane	124-48-1	1	U	1	0.88
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.88
10949	Dibromomethane	74-95-3	1	U	1	0.88
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.88
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.88
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.88
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.88
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.88
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.88
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.88
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.88
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.88
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.88
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.88
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.88
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.88
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.88
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.88
10949	Ethylbenzene	100-41-4	1	U	1	0.88
10949	Freon 113	76-13-1	2	U	2	0.88
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.88
10949	2-Hexanone	591-78-6	3	U	3	0.88
10949	Isopropylbenzene	98-82-8	1	U	1	0.88
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.88
10949	Methyl Acetate	79-20-9	2	U	2	0.88
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.88
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.88
10949	Methylcyclohexane	108-87-2	1	U	1	0.88
10949	Methylene Chloride	75-09-2	2	U	2	0.88
10949	Naphthalene	91-20-3	1	U	1	0.88

Sample Description: S11-SS01-0308-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499048
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:25 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

10308 SDG#: DHR08-13

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.88
10949	Styrene	100-42-5	1	U	1	0.88
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.88
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.88
10949	Tetrachloroethene	127-18-4	1	U	1	0.88
10949	Toluene	108-88-3	1	U	1	0.88
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.88
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.88
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.88
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.88
10949	Trichloroethene	79-01-6	1	U	1	0.88
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.88
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.88
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.88
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.88
10949	Vinyl Acetate	108-05-4	2	U	2	0.88
10949	Vinyl Chloride	75-01-4	1	U	1	0.88
10949	m+p-Xylene	179601-23-1	1	U	1	0.88
10949	o-Xylene	95-47-6	1	U	1	0.88
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	210	U	210	1
10727	1,1'-Biphenyl	92-52-4	21	U	21	1
10727	4-Bromophenyl-phenylether	101-55-3	21	U	21	1
10727	Butylbenzylphthalate	85-68-7	82	U	82	1
10727	Di-n-butylphthalate	84-74-2	82	U	82	1
10727	Carbazole	86-74-8	21	U	21	1
10727	4-Chloro-3-methylphenol	59-50-7	21	U	21	1
10727	4-Chloroaniline	106-47-8	21	U	21	1
10727	bis(2-Chloroethoxy)methane	111-91-1	21	U	21	1
10727	bis(2-Chloroethyl)ether	111-44-4	21	U	21	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	21	U	21	1
10727	4-Chlorophenyl-phenylether	7005-72-3	21	U	21	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	21	U	21	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	21	U	21	1
10727	Diethylphthalate	84-66-2	82	U	82	1
10727	2,4-Dimethylphenol	105-67-9	21	U	21	1
10727	Dimethylphthalate	131-11-3	82	U	82	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	210	U	210	1

Sample Description: S11-SS01-0308-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499048
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:25 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

10308 SDG#: DHR08-13

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	410	U	410	1
10727	2,4-Dinitrotoluene	121-14-2	82	U	82	1
10727	2,6-Dinitrotoluene	606-20-2	21	U	21	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	82	U	82	1
10727	Fluoranthene	206-44-0	4	J	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	210	U	210	1
10727	Hexachloroethane	67-72-1	41	U	41	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	21	U	21	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	21	U	21	1
10727	4-Methylphenol	106-44-5	21	U	21	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	21	U	21	1
10727	3-Nitroaniline	99-09-2	82	U	82	1
10727	4-Nitroaniline	100-01-6	82	U	82	1
10727	Nitrobenzene	98-95-3	21	U	21	1
10727	2-Nitrophenol	88-75-5	21	U	21	1
10727	4-Nitrophenol	100-02-7	210	U	210	1
10727	N-Nitroso-di-n-propylamine	621-64-7	21	U	21	1
10727	N-Nitrosodiphenylamine	86-30-6	21	U	21	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	82	U	82	1
10727	Pentachlorophenol	87-86-5	41	U	41	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	21	U	21	1
10727	Pyrene	129-00-0	6	J	4	1
10727	2,4,5-Trichlorophenol	95-95-4	21	U	21	1
10727	2,4,6-Trichlorophenol	88-06-2	21	U	21	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	113		0.0213	1
06949	Cadmium	7440-43-9	1.00		0.0237	1
06951	Chromium	7440-47-3	24.3		0.166	1
06955	Lead	7439-92-1	13.4		0.261	1
06936	Selenium	7782-49-2	0.805	U	0.805	1
06966	Silver	7440-22-4	0.0983	U	0.0983	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	14.9		0.0947	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0246	J	0.0084	1

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Analysis Report

Sample Description: S11-SS01-0308-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499048
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:25 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

10308 SDG#: DHR08-13

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	18.8	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113541AA	12/20/2011 21:17	Emily R Styer	0.88
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134826436	12/14/2011 14:03	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134826436	12/14/2011 14:03	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134826436	12/14/2011 14:03	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11349SLA026	12/16/2011 11:36	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11349SLA026	12/15/2011 15:30	David S Schrum	1
06946	Barium	SW-846 6010B	1	113495708001	12/19/2011 13:56	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113495708001	12/19/2011 13:56	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113495708001	12/19/2011 13:56	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113495708001	12/19/2011 13:56	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113495708001	12/20/2011 11:35	Joanne M Gates	1
06966	Silver	SW-846 6010B	1	113495708001	12/19/2011 13:56	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113491026001A	12/21/2011 11:46	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113495711001	12/16/2011 06:49	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113495708001	12/15/2011 21:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113491026001	12/15/2011 21:27	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113495711001	12/15/2011 23:15	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11350820005B	12/16/2011 19:06	Scott W Freisher	1

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Analysis Report

Sample Description: S11-SS01-0810-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499049
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:30 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

10810 SDG#: DHR08-14

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	35		8	0.88
10949	Benzene	71-43-2	0.6	U	0.6	0.88
10949	Bromobenzene	108-86-1	1	U	1	0.88
10949	Bromochloromethane	74-97-5	1	U	1	0.88
10949	Bromodichloromethane	75-27-4	1	U	1	0.88
10949	Bromoform	75-25-2	1	U	1	0.88
10949	Bromomethane	74-83-9	2	U	2	0.88
10949	2-Butanone	78-93-3	5	J	5	0.88
10949	n-Butylbenzene	104-51-8	1	U	1	0.88
10949	sec-Butylbenzene	135-98-8	1	U	1	0.88
10949	tert-Butylbenzene	98-06-6	1	U	1	0.88
10949	Carbon Disulfide	75-15-0	1	U	1	0.88
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.88
10949	Chlorobenzene	108-90-7	1	U	1	0.88
10949	Chloroethane	75-00-3	2	U	2	0.88
10949	Chloroform	67-66-3	1	U	1	0.88
10949	Chloromethane	74-87-3	2	U	2	0.88
10949	2-Chlorotoluene	95-49-8	1	U	1	0.88
10949	4-Chlorotoluene	106-43-4	1	U	1	0.88
10949	Cyclohexane	110-82-7	1	U	1	0.88
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.88
10949	Dibromochloromethane	124-48-1	1	U	1	0.88
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.88
10949	Dibromomethane	74-95-3	1	U	1	0.88
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.88
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.88
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.88
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.88
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.88
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.88
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.88
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.88
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.88
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.88
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.88
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.88
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.88
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.88
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.88
10949	Ethylbenzene	100-41-4	1	U	1	0.88
10949	Freon 113	76-13-1	2	U	2	0.88
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.88
10949	2-Hexanone	591-78-6	3	U	3	0.88
10949	Isopropylbenzene	98-82-8	1	U	1	0.88
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.88
10949	Methyl Acetate	79-20-9	2	U	2	0.88
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.6	U	0.6	0.88
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.88
10949	Methylcyclohexane	108-87-2	1	U	1	0.88
10949	Methylene Chloride	75-09-2	2	U	2	0.88
10949	Naphthalene	91-20-3	1	U	1	0.88

Sample Description: S11-SS01-0810-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499049
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:30 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

10810 SDG#: DHR08-14

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.88
10949	Styrene	100-42-5	1	U	1	0.88
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.88
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.88
10949	Tetrachloroethene	127-18-4	1	U	1	0.88
10949	Toluene	108-88-3	1	U	1	0.88
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.88
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.88
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.88
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.88
10949	Trichloroethene	79-01-6	1	U	1	0.88
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.88
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.88
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.88
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.88
10949	Vinyl Acetate	108-05-4	2	U	2	0.88
10949	Vinyl Chloride	75-01-4	1	U	1	0.88
10949	m+p-Xylene	179601-23-1	1	U	1	0.88
10949	o-Xylene	95-47-6	1	U	1	0.88
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	220	U	220	1
10727	1,1'-Biphenyl	92-52-4	22	U	22	1
10727	4-Bromophenyl-phenylether	101-55-3	22	U	22	1
10727	Butylbenzylphthalate	85-68-7	86	U	86	1
10727	Di-n-butylphthalate	84-74-2	86	U	86	1
10727	Carbazole	86-74-8	22	U	22	1
10727	4-Chloro-3-methylphenol	59-50-7	22	U	22	1
10727	4-Chloroaniline	106-47-8	22	U	22	1
10727	bis(2-Chloroethoxy)methane	111-91-1	22	U	22	1
10727	bis(2-Chloroethyl)ether	111-44-4	22	U	22	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	22	U	22	1
10727	4-Chlorophenyl-phenylether	7005-72-3	22	U	22	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	22	U	22	1
10727	3,3'-Dichlorobenzidine	91-94-1	130	U	130	1
10727	2,4-Dichlorophenol	120-83-2	22	U	22	1
10727	Diethylphthalate	84-66-2	86	U	86	1
10727	2,4-Dimethylphenol	105-67-9	22	U	22	1
10727	Dimethylphthalate	131-11-3	86	U	86	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	220	U	220	1

Sample Description: S11-SS01-0810-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499049
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:30 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

10810 SDG#: DHR08-14

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	430	U	430	1
10727	2,4-Dinitrotoluene	121-14-2	86	U	86	1
10727	2,6-Dinitrotoluene	606-20-2	22	U	22	1
10727	1,4-Dioxane	123-91-1	130	U	130	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	86	U	86	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	220	U	220	1
10727	Hexachloroethane	67-72-1	43	U	43	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	22	U	22	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	22	U	22	1
10727	4-Methylphenol	106-44-5	22	U	22	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	22	U	22	1
10727	3-Nitroaniline	99-09-2	86	U	86	1
10727	4-Nitroaniline	100-01-6	86	U	86	1
10727	Nitrobenzene	98-95-3	22	U	22	1
10727	2-Nitrophenol	88-75-5	22	U	22	1
10727	4-Nitrophenol	100-02-7	220	U	220	1
10727	N-Nitroso-di-n-propylamine	621-64-7	22	U	22	1
10727	N-Nitrosodiphenylamine	86-30-6	22	U	22	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	86	U	86	1
10727	Pentachlorophenol	87-86-5	43	U	43	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	22	U	22	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	22	U	22	1
10727	2,4,6-Trichlorophenol	88-06-2	22	U	22	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	67.8		0.0230	1
06949	Cadmium	7440-43-9	0.836		0.0256	1
06951	Chromium	7440-47-3	14.0		0.179	1
06955	Lead	7439-92-1	11.6		0.281	1
06936	Selenium	7782-49-2	0.869	U	0.869	1
06966	Silver	7440-22-4	0.106	U	0.106	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	13.0		0.100	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0118	J	0.0087	1

Lancaster Laboratories

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Analysis Report

Sample Description: S11-SS01-0810-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499049
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:30 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

10810 SDG#: DHR08-14

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	22.5	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113541AA	12/20/2011 21:40	Emily R Styer	0.88
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134826436	12/14/2011 14:05	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134826436	12/14/2011 14:05	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134826436	12/14/2011 14:05	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11349SLA026	12/16/2011 12:02	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11349SLA026	12/15/2011 15:30	David S Schrum	1
06946	Barium	SW-846 6010B	1	113495708001	12/19/2011 13:59	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113495708001	12/19/2011 13:59	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113495708001	12/19/2011 13:59	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113495708001	12/19/2011 13:59	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113495708001	12/19/2011 13:59	Eric L Eby	1
06966	Silver	SW-846 6010B	1	113495708001	12/19/2011 13:59	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113491026001A	12/21/2011 11:48	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113495711001	12/16/2011 06:50	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113495708001	12/15/2011 21:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113491026001	12/15/2011 21:27	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113495711001	12/15/2011 23:15	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11350820005B	12/16/2011 19:06	Scott W Freisher	1

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Analysis Report

Sample Description: S11-SS05-0002-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499050
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:50 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

50002 SDG#: DHR08-15

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	91		7	0.81
10949	Benzene	71-43-2	0.5	U	0.5	0.81
10949	Bromobenzene	108-86-1	1	U	1	0.81
10949	Bromochloromethane	74-97-5	1	U	1	0.81
10949	Bromodichloromethane	75-27-4	1	U	1	0.81
10949	Bromoform	75-25-2	1	U	1	0.81
10949	Bromomethane	74-83-9	2	U	2	0.81
10949	2-Butanone	78-93-3	9	J	4	0.81
10949	n-Butylbenzene	104-51-8	1	U	1	0.81
10949	sec-Butylbenzene	135-98-8	1	U	1	0.81
10949	tert-Butylbenzene	98-06-6	1	U	1	0.81
10949	Carbon Disulfide	75-15-0	1	U	1	0.81
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.81
10949	Chlorobenzene	108-90-7	1	U	1	0.81
10949	Chloroethane	75-00-3	2	U	2	0.81
10949	Chloroform	67-66-3	1	U	1	0.81
10949	Chloromethane	74-87-3	2	U	2	0.81
10949	2-Chlorotoluene	95-49-8	1	U	1	0.81
10949	4-Chlorotoluene	106-43-4	1	U	1	0.81
10949	Cyclohexane	110-82-7	1	U	1	0.81
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.81
10949	Dibromochloromethane	124-48-1	1	U	1	0.81
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.81
10949	Dibromomethane	74-95-3	1	U	1	0.81
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.81
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.81
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.81
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.81
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.81
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.81
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.81
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.81
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.81
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.81
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.81
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.81
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.81
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.81
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.81
10949	Ethylbenzene	100-41-4	1	U	1	0.81
10949	Freon 113	76-13-1	2	U	2	0.81
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.81
10949	2-Hexanone	591-78-6	3	U	3	0.81
10949	Isopropylbenzene	98-82-8	1	U	1	0.81
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.81
10949	Methyl Acetate	79-20-9	2	U	2	0.81
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.81
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.81
10949	Methylcyclohexane	108-87-2	1	U	1	0.81
10949	Methylene Chloride	75-09-2	2	U	2	0.81
10949	Naphthalene	91-20-3	1	U	1	0.81

Sample Description: S11-SS05-0002-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499050
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:50 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

50002 SDG#: DHR08-15

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.81
10949	Styrene	100-42-5	1	U	1	0.81
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.81
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.81
10949	Tetrachloroethene	127-18-4	17		1	0.81
10949	Toluene	108-88-3	1	U	1	0.81
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.81
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.81
10949	1,1,1-Trichloroethane	71-55-6	2	J	1	0.81
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.81
10949	Trichloroethene	79-01-6	1	U	1	0.81
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.81
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.81
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.81
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.81
10949	Vinyl Acetate	108-05-4	2	U	2	0.81
10949	Vinyl Chloride	75-01-4	1	U	1	0.81
10949	m+p-Xylene	179601-23-1	1	U	1	0.81
10949	o-Xylene	95-47-6	1	U	1	0.81
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	20	U	20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	80	U	80	1
10727	Di-n-butylphthalate	84-74-2	80	U	80	1
10727	Carbazole	86-74-8	20	U	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	8	U	8	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	20	U	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1
10727	Diethylphthalate	84-66-2	80	U	80	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	80	U	80	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1

Sample Description: S11-SS05-0002-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499050
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:50 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

50002 SDG#: DHR08-15

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	400	U	400	1
10727	2,4-Dinitrotoluene	121-14-2	80	U	80	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	80	U	80	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	40	U	40	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	80	U	80	1
10727	4-Nitroaniline	100-01-6	80	U	80	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	80	U	80	1
10727	Pentachlorophenol	87-86-5	40	U	40	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	20	U	20	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	154		0.0215	1
06949	Cadmium	7440-43-9	0.834		0.0239	1
06951	Chromium	7440-47-3	22.3		0.167	1
06955	Lead	7439-92-1	15.3		0.263	1
06936	Selenium	7782-49-2	0.813	U	0.813	1
06966	Silver	7440-22-4	0.0993	U	0.0993	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	11.8		0.0947	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0095	J	0.0083	1

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Analysis Report

Sample Description: S11-SS05-0002-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499050
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:50 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

50002 SDG#: DHR08-15

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	16.4	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113541AA	12/20/2011 22:02	Emily R Styer	0.81
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134826436	12/14/2011 14:07	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134826436	12/14/2011 14:08	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134826436	12/14/2011 14:07	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11349SLA026	12/16/2011 12:26	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11349SLA026	12/15/2011 15:30	David S Schrum	1
06946	Barium	SW-846 6010B	1	113495708001	12/19/2011 14:10	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113495708001	12/19/2011 14:10	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113495708001	12/19/2011 14:10	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113495708001	12/19/2011 14:10	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113495708001	12/19/2011 14:10	Eric L Eby	1
06966	Silver	SW-846 6010B	1	113495708001	12/19/2011 14:10	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113491026001A	12/21/2011 11:49	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113495711001	12/16/2011 06:52	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113495708001	12/15/2011 21:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113491026001	12/15/2011 21:27	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113495711001	12/15/2011 23:15	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11350820005B	12/16/2011 19:06	Scott W Freisher	1

Lancaster Laboratories

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Analysis Report

Sample Description: S11-SS05-0305-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499051
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

50305 SDG#: DHR08-16

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	35		8	0.87
10949	Benzene	71-43-2	0.5	U	0.5	0.87
10949	Bromobenzene	108-86-1	1	U	1	0.87
10949	Bromochloromethane	74-97-5	1	U	1	0.87
10949	Bromodichloromethane	75-27-4	1	U	1	0.87
10949	Bromoform	75-25-2	1	U	1	0.87
10949	Bromomethane	74-83-9	2	U	2	0.87
10949	2-Butanone	78-93-3	5	J	4	0.87
10949	n-Butylbenzene	104-51-8	1	U	1	0.87
10949	sec-Butylbenzene	135-98-8	1	U	1	0.87
10949	tert-Butylbenzene	98-06-6	1	U	1	0.87
10949	Carbon Disulfide	75-15-0	1	J	1	0.87
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.87
10949	Chlorobenzene	108-90-7	1	U	1	0.87
10949	Chloroethane	75-00-3	2	U	2	0.87
10949	Chloroform	67-66-3	1	U	1	0.87
10949	Chloromethane	74-87-3	2	U	2	0.87
10949	2-Chlorotoluene	95-49-8	1	U	1	0.87
10949	4-Chlorotoluene	106-43-4	1	U	1	0.87
10949	Cyclohexane	110-82-7	1	U	1	0.87
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.87
10949	Dibromochloromethane	124-48-1	1	U	1	0.87
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.87
10949	Dibromomethane	74-95-3	1	U	1	0.87
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.87
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.87
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.87
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.87
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.87
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.87
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.87
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.87
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.87
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.87
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.87
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.87
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.87
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.87
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.87
10949	Ethylbenzene	100-41-4	1	U	1	0.87
10949	Freon 113	76-13-1	2	U	2	0.87
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.87
10949	2-Hexanone	591-78-6	3	U	3	0.87
10949	Isopropylbenzene	98-82-8	1	U	1	0.87
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.87
10949	Methyl Acetate	79-20-9	2	U	2	0.87
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.87
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.87
10949	Methylcyclohexane	108-87-2	1	U	1	0.87
10949	Methylene Chloride	75-09-2	2	U	2	0.87
10949	Naphthalene	91-20-3	1	U	1	0.87

Sample Description: S11-SS05-0305-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499051
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

50305 SDG#: DHR08-16

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.87
10949	Styrene	100-42-5	1	U	1	0.87
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.87
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.87
10949	Tetrachloroethene	127-18-4	1	U	1	0.87
10949	Toluene	108-88-3	1	U	1	0.87
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.87
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.87
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.87
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.87
10949	Trichloroethene	79-01-6	1	U	1	0.87
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.87
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.87
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.87
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.87
10949	Vinyl Acetate	108-05-4	2	U	2	0.87
10949	Vinyl Chloride	75-01-4	1	U	1	0.87
10949	m+p-Xylene	179601-23-1	1	U	1	0.87
10949	o-Xylene	95-47-6	1	U	1	0.87
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	210	U	210	1
10727	1,1'-Biphenyl	92-52-4	21	U	21	1
10727	4-Bromophenyl-phenylether	101-55-3	21	U	21	1
10727	Butylbenzylphthalate	85-68-7	82	U	82	1
10727	Di-n-butylphthalate	84-74-2	82	U	82	1
10727	Carbazole	86-74-8	21	U	21	1
10727	4-Chloro-3-methylphenol	59-50-7	21	U	21	1
10727	4-Chloroaniline	106-47-8	21	U	21	1
10727	bis(2-Chloroethoxy)methane	111-91-1	21	U	21	1
10727	bis(2-Chloroethyl)ether	111-44-4	21	U	21	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	21	U	21	1
10727	4-Chlorophenyl-phenylether	7005-72-3	21	U	21	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	21	U	21	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	21	U	21	1
10727	Diethylphthalate	84-66-2	82	U	82	1
10727	2,4-Dimethylphenol	105-67-9	21	U	21	1
10727	Dimethylphthalate	131-11-3	82	U	82	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	210	U	210	1

Sample Description: S11-SS05-0305-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499051
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

50305 SDG#: DHR08-16

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	410	U	410	1
10727	2,4-Dinitrotoluene	121-14-2	82	U	82	1
10727	2,6-Dinitrotoluene	606-20-2	21	U	21	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	82	U	82	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	210	U	210	1
10727	Hexachloroethane	67-72-1	41	U	41	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	21	U	21	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	21	U	21	1
10727	4-Methylphenol	106-44-5	21	U	21	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	21	U	21	1
10727	3-Nitroaniline	99-09-2	82	U	82	1
10727	4-Nitroaniline	100-01-6	82	U	82	1
10727	Nitrobenzene	98-95-3	21	U	21	1
10727	2-Nitrophenol	88-75-5	21	U	21	1
10727	4-Nitrophenol	100-02-7	210	U	210	1
10727	N-Nitroso-di-n-propylamine	621-64-7	21	U	21	1
10727	N-Nitrosodiphenylamine	86-30-6	21	U	21	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	82	U	82	1
10727	Pentachlorophenol	87-86-5	41	U	41	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	21	U	21	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	21	U	21	1
10727	2,4,6-Trichlorophenol	88-06-2	21	U	21	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	91.0		0.0218	1
06949	Cadmium	7440-43-9	0.909		0.0242	1
06951	Chromium	7440-47-3	19.3		0.169	1
06955	Lead	7439-92-1	14.5		0.266	1
06936	Selenium	7782-49-2	0.823	U	0.823	1
06966	Silver	7440-22-4	0.100	U	0.100	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	14.3		0.0988	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0224	J	0.0084	1

Lancaster Laboratories

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Analysis Report

Sample Description: S11-SS05-0305-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499051
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

50305 SDG#: DHR08-16

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	19.0	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113561AA	12/22/2011 16:27	Chelsea B Eastep	0.87
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134826436	12/14/2011 14:09	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134826436	12/14/2011 14:09	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134826436	12/14/2011 14:09	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11349SLA026	12/16/2011 12:51	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11349SLA026	12/15/2011 15:30	David S Schrum	1
06946	Barium	SW-846 6010B	1	113495708001	12/19/2011 14:13	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113495708001	12/19/2011 14:13	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113495708001	12/19/2011 14:13	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113495708001	12/19/2011 14:13	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113495708001	12/20/2011 11:39	Joanne M Gates	1
06966	Silver	SW-846 6010B	1	113495708001	12/19/2011 14:13	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113491026001A	12/21/2011 11:51	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113495711001	12/16/2011 06:56	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113495708001	12/15/2011 21:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113491026001	12/15/2011 21:27	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113495711001	12/15/2011 23:15	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11350820005B	12/16/2011 19:06	Scott W Freisher	1

Lancaster Laboratories

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Analysis Report

Sample Description: S11-SS05-0810-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499052
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 11:00 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

50810 SDG#: DHR08-17*

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	34		8	0.9
10949	Benzene	71-43-2	0.6	U	0.6	0.9
10949	Bromobenzene	108-86-1	1	U	1	0.9
10949	Bromochloromethane	74-97-5	1	U	1	0.9
10949	Bromodichloromethane	75-27-4	1	U	1	0.9
10949	Bromoform	75-25-2	1	U	1	0.9
10949	Bromomethane	74-83-9	2	U	2	0.9
10949	2-Butanone	78-93-3	5	J	5	0.9
10949	n-Butylbenzene	104-51-8	1	U	1	0.9
10949	sec-Butylbenzene	135-98-8	1	U	1	0.9
10949	tert-Butylbenzene	98-06-6	1	U	1	0.9
10949	Carbon Disulfide	75-15-0	1	U	1	0.9
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.9
10949	Chlorobenzene	108-90-7	1	U	1	0.9
10949	Chloroethane	75-00-3	2	U	2	0.9
10949	Chloroform	67-66-3	1	U	1	0.9
10949	Chloromethane	74-87-3	2	U	2	0.9
10949	2-Chlorotoluene	95-49-8	1	U	1	0.9
10949	4-Chlorotoluene	106-43-4	1	U	1	0.9
10949	Cyclohexane	110-82-7	1	U	1	0.9
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.9
10949	Dibromochloromethane	124-48-1	1	U	1	0.9
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.9
10949	Dibromomethane	74-95-3	1	U	1	0.9
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.9
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.9
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.9
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.9
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.9
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.9
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.9
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.9
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.9
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.9
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.9
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.9
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.9
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.9
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.9
10949	Ethylbenzene	100-41-4	1	U	1	0.9
10949	Freon 113	76-13-1	2	U	2	0.9
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.9
10949	2-Hexanone	591-78-6	3	U	3	0.9
10949	Isopropylbenzene	98-82-8	1	U	1	0.9
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.9
10949	Methyl Acetate	79-20-9	2	U	2	0.9
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.6	U	0.6	0.9
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.9
10949	Methylcyclohexane	108-87-2	1	U	1	0.9
10949	Methylene Chloride	75-09-2	2	U	2	0.9
10949	Naphthalene	91-20-3	1	U	1	0.9

Sample Description: S11-SS05-0810-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499052
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 11:00 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

50810 SDG#: DHR08-17*

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.9
10949	Styrene	100-42-5	1	U	1	0.9
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.9
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.9
10949	Tetrachloroethene	127-18-4	1	U	1	0.9
10949	Toluene	108-88-3	1	U	1	0.9
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.9
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.9
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.9
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.9
10949	Trichloroethene	79-01-6	1	U	1	0.9
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.9
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.9
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.9
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.9
10949	Vinyl Acetate	108-05-4	2	U	2	0.9
10949	Vinyl Chloride	75-01-4	1	U	1	0.9
10949	m+p-Xylene	179601-23-1	1	U	1	0.9
10949	o-Xylene	95-47-6	1	U	1	0.9
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	210	U	210	1
10727	1,1'-Biphenyl	92-52-4	21	U	21	1
10727	4-Bromophenyl-phenylether	101-55-3	21	U	21	1
10727	Butylbenzylphthalate	85-68-7	84	U	84	1
10727	Di-n-butylphthalate	84-74-2	84	U	84	1
10727	Carbazole	86-74-8	21	U	21	1
10727	4-Chloro-3-methylphenol	59-50-7	21	U	21	1
10727	4-Chloroaniline	106-47-8	21	U	21	1
10727	bis(2-Chloroethoxy)methane	111-91-1	21	U	21	1
10727	bis(2-Chloroethyl)ether	111-44-4	21	U	21	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	21	U	21	1
10727	4-Chlorophenyl-phenylether	7005-72-3	21	U	21	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	21	U	21	1
10727	3,3'-Dichlorobenzidine	91-94-1	130	U	130	1
10727	2,4-Dichlorophenol	120-83-2	21	U	21	1
10727	Diethylphthalate	84-66-2	84	U	84	1
10727	2,4-Dimethylphenol	105-67-9	21	U	21	1
10727	Dimethylphthalate	131-11-3	84	U	84	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	210	U	210	1

Sample Description: S11-SS05-0810-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499052
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 11:00 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

50810 SDG#: DHR08-17*

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	420	U	420	1
10727	2,4-Dinitrotoluene	121-14-2	84	U	84	1
10727	2,6-Dinitrotoluene	606-20-2	21	U	21	1
10727	1,4-Dioxane	123-91-1	130	U	130	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	84	U	84	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	210	U	210	1
10727	Hexachloroethane	67-72-1	42	U	42	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	21	U	21	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	21	U	21	1
10727	4-Methylphenol	106-44-5	21	U	21	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	21	U	21	1
10727	3-Nitroaniline	99-09-2	84	U	84	1
10727	4-Nitroaniline	100-01-6	84	U	84	1
10727	Nitrobenzene	98-95-3	21	U	21	1
10727	2-Nitrophenol	88-75-5	21	U	21	1
10727	4-Nitrophenol	100-02-7	210	U	210	1
10727	N-Nitroso-di-n-propylamine	621-64-7	21	U	21	1
10727	N-Nitrosodiphenylamine	86-30-6	21	U	21	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	84	U	84	1
10727	Pentachlorophenol	87-86-5	42	U	42	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	21	U	21	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	21	U	21	1
10727	2,4,6-Trichlorophenol	88-06-2	21	U	21	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	99.6		0.0227	1
06949	Cadmium	7440-43-9	0.885		0.0252	1
06951	Chromium	7440-47-3	16.9		0.176	1
06955	Lead	7439-92-1	13.3		0.277	1
06936	Selenium	7782-49-2	0.856	U	0.856	1
06966	Silver	7440-22-4	0.105	U	0.105	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	14.6		0.0988	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0217	J	0.0084	1

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Sample Description: S11-SS05-0810-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499052
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 11:00 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

50810 SDG#: DHR08-17*

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	20.6	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113561AA	12/22/2011 16:49	Chelsea B Eastep	0.9
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134826436	12/14/2011 14:11	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134826436	12/14/2011 14:11	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134826436	12/14/2011 14:11	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11349SLA026	12/16/2011 13:17	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11349SLA026	12/15/2011 15:30	David S Schrum	1
06946	Barium	SW-846 6010B	1	113495708001	12/19/2011 14:17	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113495708001	12/19/2011 14:17	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113495708001	12/19/2011 14:17	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113495708001	12/19/2011 14:17	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113495708001	12/19/2011 14:17	Eric L Eby	1
06966	Silver	SW-846 6010B	1	113495708001	12/19/2011 14:17	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113491026001A	12/21/2011 11:52	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113495711001	12/16/2011 06:57	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113495708001	12/15/2011 21:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113491026001	12/15/2011 21:27	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113495711001	12/15/2011 23:15	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11350820005B	12/16/2011 19:06	Scott W Freisher	1

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280964
Reported: 12/27/11 at 01:47 PM

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: A113541AA	Sample number(s): 6499034-6499037,6499039-6499050								
Acetone	7	U	7.	ug/kg	135		32-209		
Benzene	0.5	U	0.5	ug/kg	88		80-120		
Bromobenzene	1	U	1.	ug/kg	99		79-120		
Bromochloromethane	1	U	1.	ug/kg	97		79-124		
Bromodichloromethane	1	U	1.	ug/kg	92		78-120		
Bromoform	1	U	1.	ug/kg	96		70-120		
Bromomethane	2	U	2.	ug/kg	96		32-162		
2-Butanone	4	U	4.	ug/kg	88		46-153		
n-Butylbenzene	1	U	1.	ug/kg	91		72-120		
sec-Butylbenzene	1	U	1.	ug/kg	95		75-120		
tert-Butylbenzene	1	U	1.	ug/kg	96		75-120		
Carbon Disulfide	1	U	1.	ug/kg	81		67-122		
Carbon Tetrachloride	1	U	1.	ug/kg	107		69-122		
Chlorobenzene	1	U	1.	ug/kg	97		80-120		
Chloroethane	2	U	2.	ug/kg	84		37-154		
Chloroform	1	U	1.	ug/kg	99		80-120		
Chloromethane	2	U	2.	ug/kg	73		54-132		
2-Chlorotoluene	1	U	1.	ug/kg	94		78-120		
4-Chlorotoluene	1	U	1.	ug/kg	96		79-120		
Cyclohexane	1	U	1.	ug/kg	82		62-121		
1,2-Dibromo-3-chloropropane	2	U	2.	ug/kg	91		58-120		
Dibromochloromethane	1	U	1.	ug/kg	97		77-120		
1,2-Dibromoethane	1	U	1.	ug/kg	95		80-120		
Dibromomethane	1	U	1.	ug/kg	91		80-120		
1,2-Dichlorobenzene	1	U	1.	ug/kg	98		79-120		
1,3-Dichlorobenzene	1	U	1.	ug/kg	99		78-120		
1,4-Dichlorobenzene	1	U	1.	ug/kg	98		79-120		
Dichlorodifluoromethane	2	U	2.	ug/kg	94		20-120		
1,1-Dichloroethane	1	U	1.	ug/kg	91		80-120		
1,2-Dichloroethane	1	U	1.	ug/kg	108		71-129		
1,1-Dichloroethene	1	U	1.	ug/kg	91		73-123		
cis-1,2-Dichloroethene	1	U	1.	ug/kg	88		80-120		
trans-1,2-Dichloroethene	1	U	1.	ug/kg	92		79-120		
1,2-Dichloropropane	1	U	1.	ug/kg	80		80-120		
1,3-Dichloropropane	1	U	1.	ug/kg	89		80-120		
2,2-Dichloropropane	1	U	1.	ug/kg	97		72-123		
1,1-Dichloropropene	1	U	1.	ug/kg	93		77-120		
cis-1,3-Dichloropropene	1	U	1.	ug/kg	82		80-120		
trans-1,3-Dichloropropene	1	U	1.	ug/kg	88		77-120		
Ethylbenzene	1	U	1.	ug/kg	97		80-120		
Freon 113	2	U	2.	ug/kg	95		61-126		
Hexachlorobutadiene	2	U	2.	ug/kg	118		57-120		
2-Hexanone	3	U	3.	ug/kg	78		45-155		
Isopropylbenzene	1	U	1.	ug/kg	102		76-120		
p-Isopropyltoluene	1	U	1.	ug/kg	100		75-120		

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280964
Reported: 12/27/11 at 01:47 PM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Methyl Acetate	2	U	2.	ug/kg	114		61-152		
Methyl Tertiary Butyl Ether	0.5	U	0.5	ug/kg	95		74-121		
4-Methyl-2-pentanone	3	U	3.	ug/kg	86		61-134		
Methylcyclohexane	1	U	1.	ug/kg	88		57-138		
Methylene Chloride	2	U	2.	ug/kg	86		76-124		
Naphthalene	1	U	1.	ug/kg	95		59-123		
n-Propylbenzene	1	U	1.	ug/kg	93		77-120		
Styrene	1	U	1.	ug/kg	98		76-120		
1,1,1,2-Tetrachloroethane	1	U	1.	ug/kg	103		80-120		
1,1,2,2-Tetrachloroethane	1	U	1.	ug/kg	75		71-123		
Tetrachloroethene	1	U	1.	ug/kg	111		77-120		
Toluene	1	U	1.	ug/kg	92		80-120		
1,2,3-Trichlorobenzene	1	U	1.	ug/kg	107		64-120		
1,2,4-Trichlorobenzene	1	U	1.	ug/kg	102		68-120		
1,1,1-Trichloroethane	1	U	1.	ug/kg	105		71-125		
1,1,2-Trichloroethane	1	U	1.	ug/kg	90		80-120		
Trichloroethene	1	U	1.	ug/kg	92		80-120		
Trichlorofluoromethane	2	U	2.	ug/kg	112		58-133		
1,2,3-Trichloropropane	1	U	1.	ug/kg	93		71-123		
1,2,4-Trimethylbenzene	1	U	1.	ug/kg	96		79-120		
1,3,5-Trimethylbenzene	1	U	1.	ug/kg	98		78-120		
Vinyl Acetate	2	U	2.	ug/kg	86		56-137		
Vinyl Chloride	1	U	1.	ug/kg	78		53-120		
m+p-Xylene	1	U	1.	ug/kg	98		80-120		
o-Xylene	1	U	1.	ug/kg	94		80-120		
Batch number: A113561AA	Sample number(s): 6499051-6499052								
Acetone	7	U	7.	ug/kg	113		32-209		
Benzene	0.5	U	0.5	ug/kg	93		80-120		
Bromobenzene	1	U	1.	ug/kg	97		79-120		
Bromochloromethane	1	U	1.	ug/kg	92		79-124		
Bromodichloromethane	1	U	1.	ug/kg	91		78-120		
Bromoform	1	U	1.	ug/kg	91		70-120		
Bromomethane	2	U	2.	ug/kg	87		32-162		
2-Butanone	4	U	4.	ug/kg	116		46-153		
n-Butylbenzene	1	U	1.	ug/kg	99		72-120		
sec-Butylbenzene	1	U	1.	ug/kg	102		75-120		
tert-Butylbenzene	1	U	1.	ug/kg	97		75-120		
Carbon Disulfide	1	U	1.	ug/kg	82		67-122		
Carbon Tetrachloride	1	U	1.	ug/kg	94		69-122		
Chlorobenzene	1	U	1.	ug/kg	95		80-120		
Chloroethane	2	U	2.	ug/kg	83		37-154		
Chloroform	1	U	1.	ug/kg	97		80-120		
Chloromethane	2	U	2.	ug/kg	77		54-132		
2-Chlorotoluene	1	U	1.	ug/kg	94		78-120		
4-Chlorotoluene	1	U	1.	ug/kg	97		79-120		
Cyclohexane	1	U	1.	ug/kg	98		62-121		
1,2-Dibromo-3-chloropropane	2	U	2.	ug/kg	108		58-120		
Dibromochloromethane	1	U	1.	ug/kg	90		77-120		
1,2-Dibromoethane	1	U	1.	ug/kg	99		80-120		
Dibromomethane	1	U	1.	ug/kg	92		80-120		
1,2-Dichlorobenzene	1	U	1.	ug/kg	96		79-120		
1,3-Dichlorobenzene	1	U	1.	ug/kg	98		78-120		
1,4-Dichlorobenzene	1	U	1.	ug/kg	97		79-120		
Dichlorodifluoromethane	2	U	2.	ug/kg	79		20-120		
1,1-Dichloroethane	1	U	1.	ug/kg	96		80-120		
1,2-Dichloroethane	1	U	1.	ug/kg	111		71-129		
1,1-Dichloroethene	1	U	1.	ug/kg	88		73-123		

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280964
Reported: 12/27/11 at 01:47 PM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
cis-1,2-Dichloroethene	1	U	1.	ug/kg	90		80-120		
trans-1,2-Dichloroethene	1	U	1.	ug/kg	88		79-120		
1,2-Dichloropropane	1	U	1.	ug/kg	89		80-120		
1,3-Dichloropropane	1	U	1.	ug/kg	98		80-120		
2,2-Dichloropropane	1	U	1.	ug/kg	89		72-123		
1,1-Dichloropropene	1	U	1.	ug/kg	95		77-120		
cis-1,3-Dichloropropene	1	U	1.	ug/kg	87		80-120		
trans-1,3-Dichloropropene	1	U	1.	ug/kg	91		77-120		
Ethylbenzene	1	U	1.	ug/kg	100		80-120		
Freon 113	2	U	2.	ug/kg	92		61-126		
Hexachlorobutadiene	2	U	2.	ug/kg	103		57-120		
2-Hexanone	3	U	3.	ug/kg	99		45-155		
Isopropylbenzene	1	U	1.	ug/kg	102		76-120		
p-Isopropyltoluene	1	U	1.	ug/kg	102		75-120		
Methyl Acetate	2	U	2.	ug/kg	125		61-152		
Methyl Tertiary Butyl Ether	0.5	U	0.5	ug/kg	97		74-121		
4-Methyl-2-pentanone	3	U	3.	ug/kg	113		61-134		
Methylcyclohexane	1	U	1.	ug/kg	101		57-138		
Methylene Chloride	2	U	2.	ug/kg	87		76-124		
Naphthalene	1	U	1.	ug/kg	102		59-123		
n-Propylbenzene	1	U	1.	ug/kg	102		77-120		
Styrene	1	U	1.	ug/kg	100		76-120		
1,1,1,2-Tetrachloroethane	1	U	1.	ug/kg	94		80-120		
1,1,2,2-Tetrachloroethane	1	U	1.	ug/kg	95		71-123		
Tetrachloroethene	1	U	1.	ug/kg	100		77-120		
Toluene	1	U	1.	ug/kg	95		80-120		
1,2,3-Trichlorobenzene	1	U	1.	ug/kg	103		64-120		
1,2,4-Trichlorobenzene	1	U	1.	ug/kg	98		68-120		
1,1,1-Trichloroethane	1	U	1.	ug/kg	95		71-125		
1,1,2-Trichloroethane	1	U	1.	ug/kg	97		80-120		
Trichloroethene	1	U	1.	ug/kg	91		80-120		
Trichlorofluoromethane	2	U	2.	ug/kg	105		58-133		
1,2,3-Trichloropropane	1	U	1.	ug/kg	99		71-123		
1,2,4-Trimethylbenzene	1	U	1.	ug/kg	101		79-120		
1,3,5-Trimethylbenzene	1	U	1.	ug/kg	102		78-120		
Vinyl Acetate	2	U	2.	ug/kg	92	89	56-137	3	30
Vinyl Chloride	1	U	1.	ug/kg	78		53-120		
m+p-Xylene	1	U	1.	ug/kg	97		80-120		
o-Xylene	1	U	1.	ug/kg	95		80-120		

Batch number: 11349SLA026 Sample number(s): 6499034-6499037,6499039-6499052

Acenaphthene	3	U	3.	ug/kg	98		83-111		
Acenaphthylene	3	U	3.	ug/kg	106		68-120		
Anthracene	3	U	3.	ug/kg	98		83-111		
Benzo(a)anthracene	3	U	3.	ug/kg	97		82-111		
Benzo(a)pyrene	3	U	3.	ug/kg	104		63-138		
Benzo(b)fluoranthene	3	U	3.	ug/kg	101		61-133		
Benzo(g,h,i)perylene	3	U	3.	ug/kg	98		63-130		
Benzo(k)fluoranthene	3	U	3.	ug/kg	103		71-135		
Benzyl alcohol	170	U	170.	ug/kg	98		68-111		
1,1'-Biphenyl	17	U	17.	ug/kg	99		82-106		
4-Bromophenyl-phenylether	17	U	17.	ug/kg	96		79-117		
Butylbenzylphthalate	67	U	67.	ug/kg	101		77-125		
Di-n-butylphthalate	67	U	67.	ug/kg	99		79-112		
Carbazole	17	U	17.	ug/kg	96		83-111		
4-Chloro-3-methylphenol	17	U	17.	ug/kg	97		74-119		
4-Chloroaniline	17	U	17.	ug/kg	78		10-97		
bis(2-Chloroethoxy)methane	17	U	17.	ug/kg	99		82-113		

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280964
Reported: 12/27/11 at 01:47 PM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
bis(2-Chloroethyl)ether	17	U	17.	ug/kg	96		77-115		
2-Chloronaphthalene	7	U	7.	ug/kg	115		50-117		
2-Chlorophenol	17	U	17.	ug/kg	98		83-119		
4-Chlorophenyl-phenylether	17	U	17.	ug/kg	99		79-110		
Chrysene	3	U	3.	ug/kg	96		81-111		
Dibenz(a,h)anthracene	3	U	3.	ug/kg	99		67-129		
Dibenzofuran	17	U	17.	ug/kg	98		85-110		
3,3'-Dichlorobenzidine	100	U	100.	ug/kg	71		17-116		
2,4-Dichlorophenol	17	U	17.	ug/kg	100		87-117		
Diethylphthalate	67	U	67.	ug/kg	100		82-113		
2,4-Dimethylphenol	17	U	17.	ug/kg	99		83-120		
Dimethylphthalate	67	U	67.	ug/kg	101		85-111		
4,6-Dinitro-2-methylphenol	170	U	170.	ug/kg	96		60-113		
2,4-Dinitrophenol	330	U	330.	ug/kg	89		39-126		
2,4-Dinitrotoluene	67	U	67.	ug/kg	102		80-116		
2,6-Dinitrotoluene	17	U	17.	ug/kg	104		79-115		
1,4-Dioxane	100	U	100.	ug/kg	58		38-75		
bis(2-Ethylhexyl)phthalate	67	U	67.	ug/kg	100		75-124		
Fluoranthene	3	U	3.	ug/kg	98		80-113		
Fluorene	3	U	3.	ug/kg	101		81-117		
Hexachlorobenzene	3	U	3.	ug/kg	95		79-115		
Hexachlorocyclopentadiene	170	U	170.	ug/kg	111		64-127		
Hexachloroethane	33	U	33.	ug/kg	92		76-109		
Indeno(1,2,3-cd)pyrene	3	U	3.	ug/kg	99		64-128		
Isophorone	17	U	17.	ug/kg	97		72-107		
2-Methylnaphthalene	3	U	3.	ug/kg	95		79-110		
2-Methylphenol	17	U	17.	ug/kg	100		80-119		
4-Methylphenol	17	U	17.	ug/kg	103		74-116		
2-Nitroaniline	17	U	17.	ug/kg	101		83-118		
3-Nitroaniline	67	U	67.	ug/kg	97		66-114		
4-Nitroaniline	67	U	67.	ug/kg	76		52-92		
Nitrobenzene	17	U	17.	ug/kg	98		78-122		
2-Nitrophenol	17	U	17.	ug/kg	96		81-114		
4-Nitrophenol	170	U	170.	ug/kg	89		57-131		
N-Nitroso-di-n-propylamine	17	U	17.	ug/kg	89		70-113		
N-Nitrosodiphenylamine	17	U	17.	ug/kg	101		86-112		
Di-n-octylphthalate	67	U	67.	ug/kg	106		65-141		
Pentachlorophenol	33	U	33.	ug/kg	96		50-133		
Phenanthrene	3	U	3.	ug/kg	96		83-109		
Phenol	17	U	17.	ug/kg	97		74-115		
Pyrene	3	U	3.	ug/kg	96		80-121		
2,4,5-Trichlorophenol	17	U	17.	ug/kg	102		84-109		
2,4,6-Trichlorophenol	17	U	17.	ug/kg	102		88-114		
Batch number: 11353WAA026	Sample number(s): 6499033								
Acenaphthene	0.1	U	0.1	ug/l	102	101	75-114	1	30
Acenaphthylene	0.1	U	0.1	ug/l	110	109	80-122	1	30
Anthracene	0.1	U	0.1	ug/l	102	104	76-115	2	30
Benzo(a)anthracene	0.1	U	0.1	ug/l	97	97	75-116	0	30
Benzo(a)pyrene	0.1	U	0.1	ug/l	108	108	64-126	0	30
Benzo(b)fluoranthene	0.1	U	0.1	ug/l	107	109	66-125	2	30
Benzo(g,h,i)perylene	0.1	U	0.1	ug/l	103	105	66-132	2	30
Benzo(k)fluoranthene	0.1	U	0.1	ug/l	110	109	66-131	1	30
Benzyl alcohol	5	U	5.	ug/l	79	77	66-97	2	30
1,1'-Biphenyl	0.5	U	0.5	ug/l	100	100	80-109	0	30
4-Bromophenyl-phenylether	0.5	U	0.5	ug/l	101	103	75-115	2	30
Butylbenzylphthalate	2	U	2.	ug/l	104	104	77-115	0	30
Di-n-butylphthalate	2	U	2.	ug/l	102	106	76-115	4	30

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280964
Reported: 12/27/11 at 01:47 PM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Carbazole	0.5	U	0.5	ug/l	99	102	75-120	3	30
4-Chloro-3-methylphenol	0.5	U	0.5	ug/l	101	102	70-123	0	30
4-Chloroaniline	0.5	U	0.5	ug/l	51	70	24-128	32*	30
bis(2-Chloroethoxy)methane	0.5	U	0.5	ug/l	104	107	74-124	3	30
bis(2-Chloroethyl)ether	0.5	U	0.5	ug/l	104	103	77-108	1	30
2-Chloronaphthalene	0.4	U	0.4	ug/l	98	99	54-132	1	30
2-Chlorophenol	0.5	U	0.5	ug/l	96	96	71-114	0	30
4-Chlorophenyl-phenylether	0.5	U	0.5	ug/l	102	102	77-114	0	30
Chrysene	0.1	U	0.1	ug/l	101	101	76-116	1	30
Dibenz(a,h)anthracene	0.1	U	0.1	ug/l	104	106	67-131	1	30
Dibenzofuran	0.5	U	0.5	ug/l	102	101	75-117	1	30
3,3'-Dichlorobenzidine	2	U	2.	ug/l	56	67	37-117	16	30
2,4-Dichlorophenol	0.5	U	0.5	ug/l	103	104	77-117	1	30
Diethylphthalate	2	U	2.	ug/l	104	104	66-116	0	30
2,4-Dimethylphenol	0.5	U	0.5	ug/l	100	102	72-110	2	30
Dimethylphthalate	2	U	2.	ug/l	104	103	39-126	0	30
4,6-Dinitro-2-methylphenol	5	U	5.	ug/l	98	102	65-126	4	30
2,4-Dinitrophenol	10	U	10.	ug/l	91	91	52-131	0	30
2,4-Dinitrotoluene	1	U	1.	ug/l	105	105	76-119	0	30
2,6-Dinitrotoluene	0.5	U	0.5	ug/l	106	106	76-118	0	30
1,4-Dioxane	1	U	1.	ug/l	46	45	32-78	2	30
bis(2-Ethylhexyl)phthalate	2	U	2.	ug/l	102	103	78-117	1	30
Fluoranthene	0.1	U	0.1	ug/l	99	103	76-119	4	30
Fluorene	0.1	U	0.1	ug/l	105	104	76-116	1	30
Hexachlorobenzene	0.1	U	0.1	ug/l	97	99	75-119	1	30
Hexachlorocyclopentadiene	5	U	5.	ug/l	82	84	36-118	2	30
Hexachloroethane	1	U	1.	ug/l	87	89	52-113	2	30
Indeno(1,2,3-cd)pyrene	0.1	U	0.1	ug/l	104	105	69-121	1	30
Isophorone	0.5	U	0.5	ug/l	104	105	74-117	1	30
2-Methylnaphthalene	0.1	U	0.1	ug/l	99	101	69-108	2	30
2-Methylphenol	0.5	U	0.5	ug/l	97	95	58-110	2	30
4-Methylphenol	0.5	U	0.5	ug/l	92	90	49-108	2	30
2-Nitroaniline	0.5	U	0.5	ug/l	106	104	75-120	2	30
3-Nitroaniline	0.5	U	0.5	ug/l	97	98	74-113	1	30
4-Nitroaniline	0.5	U	0.5	ug/l	67	68	59-100	2	30
Nitrobenzene	0.5	U	0.5	ug/l	100	103	75-109	3	30
2-Nitrophenol	0.5	U	0.5	ug/l	99	103	76-118	4	30
4-Nitrophenol	10	U	10.	ug/l	38	36	16-78	6	30
N-Nitroso-di-n-propylamine	0.5	U	0.5	ug/l	100	100	69-110	0	30
N-Nitrosodiphenylamine	0.5	U	0.5	ug/l	103	105	67-136	2	30
Di-n-octylphthalate	2	U	2.	ug/l	114	115	68-128	1	30
Pentachlorophenol	1	U	1.	ug/l	93	95	53-110	2	30
Phenanthrene	0.1	U	0.1	ug/l	100	102	76-113	2	30
Phenol	0.5	U	0.5	ug/l	47	46	21-67	1	30
Pyrene	0.1	U	0.1	ug/l	101	99	75-119	1	30
2,4,5-Trichlorophenol	0.5	U	0.5	ug/l	102	102	79-107	1	30
2,4,6-Trichlorophenol	0.5	U	0.5	ug/l	102	102	76-120	1	30
Batch number: 113491026001A	Sample number(s): 6499034-6499052								
Arsenic	0.0800	U	0.0800	mg/kg	105		83-111		
Batch number: 113495705002	Sample number(s): 6499033								
Barium	0.00026	U	0.00026	mg/l	101		90-110		
Cadmium	0.00027	U	0.00027	mg/l	103		90-112		
Chromium	0.0011	U	0.0011	mg/l	101		90-110		
Lead	0.0022	U	0.0022	mg/l	105		88-110		
Selenium	0.0069	U	0.0069	mg/l	100		80-120		
Silver	0.00091	U	0.00091	mg/l	91		83-120		

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280964
Reported: 12/27/11 at 01:47 PM

Analysis Name	Blank Result	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 113495708001	Sample number(s): 6499034-6499052							
Barium	0.0180 U	0.0180	mg/kg	102		89-112		
Cadmium	0.0200 U	0.0200	mg/kg	100		88-117		
Chromium	0.140 U	0.140	mg/kg	102		80-111		
Lead	0.365 J	0.220	mg/kg	99		90-115		
Selenium	0.680 U	0.680	mg/kg	100		83-111		
Silver	0.0830 U	0.0830	mg/kg	102		86-112		
Batch number: 113495711001	Sample number(s): 6499034-6499052							
Mercury	0.0068 U	0.0068	mg/kg	98		83-119		
Batch number: 113495713003	Sample number(s): 6499033							
Mercury	0.000026 U	0.00002 6	mg/l	93		80-120		
Batch number: 113496050001A	Sample number(s): 6499033							
Arsenic	0.00095 U	0.00095	mg/l	104		86-111		
Batch number: 11350820005A	Sample number(s): 6499034-6499044							
Moisture				100		99-101		
Moisture				100		99-101		
Moisture Duplicate				100		99-101		
Batch number: 11350820005B	Sample number(s): 6499045-6499052							
Moisture				100		99-101		

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: A113541AA	Sample number(s): 6499034-6499037,6499039-6499050 UNSPK: 6499035								
Acetone	131	128	31-195	2	30				
Benzene	97	93	55-143	5	30				
Bromobenzene	108	104	43-139	4	30				
Bromochloromethane	98	104	60-137	6	30				
Bromodichloromethane	95	91	53-136	4	30				
Bromoform	104	98	38-124	7	30				
Bromomethane	106	107	42-168	2	30				
2-Butanone	120	107	37-163	11	30				
n-Butylbenzene	96	95	30-146	2	30				
sec-Butylbenzene	108	105	33-157	3	30				
tert-Butylbenzene	110	106	41-152	4	30				
Carbon Disulfide	102	109	48-146	6	30				
Carbon Tetrachloride	116	110	45-153	5	30				
Chlorobenzene	103	100	49-135	2	30				
Chloroethane	100	103	39-152	3	30				
Chloroform	105	101	61-142	4	30				
Chloromethane	81	85	51-163	5	30				
2-Chlorotoluene	103	99	42-146	3	30				
4-Chlorotoluene	104	99	39-145	5	30				

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280964
Reported: 12/27/11 at 01:47 PM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Cyclohexane	97	96	57-151	1	30				
1,2-Dibromo-3-chloropropane	119	108	30-139	9	30				
Dibromochloromethane	101	98	51-128	3	30				
1,2-Dibromoethane	105	102	54-129	3	30				
Dibromomethane	98	93	57-130	6	30				
1,2-Dichlorobenzene	103	99	36-133	4	30				
1,3-Dichlorobenzene	106	101	34-134	4	30				
1,4-Dichlorobenzene	104	100	35-136	4	30				
Dichlorodifluoromethane	109	113	26-151	3	30				
1,1-Dichloroethane	99	98	63-142	1	30				
1,2-Dichloroethane	116	110	68-131	5	30				
1,1-Dichloroethene	105	98	61-149	6	30				
cis-1,2-Dichloroethene	98	93	60-136	5	30				
trans-1,2-Dichloroethene	103	97	59-142	5	30				
1,2-Dichloropropane	86	84	62-135	3	30				
1,3-Dichloropropane	96	94	58-129	2	30				
2,2-Dichloropropane	94	89	53-147	6	30				
1,1-Dichloropropene	105	100	54-145	5	30				
cis-1,3-Dichloropropene	84	83	51-131	2	30				
trans-1,3-Dichloropropene	88	87	49-129	1	30				
Ethylbenzene	106	102	44-141	5	30				
Freon 113	110	106	56-156	3	30				
Hexachlorobutadiene	109	116	10-155	6	30				
2-Hexanone	104	96	32-160	8	30				
Isopropylbenzene	110	107	38-144	3	30				
p-Isopropyltoluene	109	106	29-152	2	30				
Methyl Acetate	117	124	48-161	6	30				
Methyl Tertiary Butyl Ether	104	100	55-129	4	30				
4-Methyl-2-pentanone	115	105	46-139	9	30				
Methylcyclohexane	95	102	39-168	8	30				
Methylene Chloride	93	90	61-141	4	30				
Naphthalene	98	96	10-138	2	30				
n-Propylbenzene	105	100	39-157	5	30				
Styrene	48	43	35-134	12	30				
1,1,1,2-Tetrachloroethane	107	102	52-130	4	30				
1,1,2,2-Tetrachloroethane	93	88	40-152	6	30				
Tetrachloroethene	122	119	42-149	3	30				
Toluene	102	98	50-146	4	30				
1,2,3-Trichlorobenzene	101	101	10-140	0	30				
1,2,4-Trichlorobenzene	97	98	10-136	0	30				
1,1,1-Trichloroethane	115	107	64-142	7	30				
1,1,2-Trichloroethane	99	99	54-139	1	30				
Trichloroethene	103	95	53-144	8	30				
Trichlorofluoromethane	129	131	47-163	2	30				
1,2,3-Trichloropropane	110	103	45-154	6	30				
1,2,4-Trimethylbenzene	107	103	37-149	4	30				
1,3,5-Trimethylbenzene	109	103	38-150	6	30				
Vinyl Acetate	74	92	21-139	25	30				
Vinyl Chloride	90	92	50-154	3	30				
m+p-Xylene	105	101	44-137	3	30				
o-Xylene	101	97	42-137	4	30				

Batch number: A113561AA Sample number(s): 6499051-6499052 UNSPK: P499056

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280964
Reported: 12/27/11 at 01:47 PM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Acetone	120	102	31-195	10	30				
Benzene	92	95	55-143	2	30				
Bromobenzene	84	85	43-139	1	30				
Bromochloromethane	84	91	60-137	6	30				
Bromodichloromethane	84	86	53-136	0	30				
Bromoform	82	81	38-124	2	30				
Bromomethane	95	99	42-168	2	30				
2-Butanone	140	123	37-163	13	30				
n-Butylbenzene	73	81	30-146	9	30				
sec-Butylbenzene	79	89	33-157	11	30				
tert-Butylbenzene	78	87	41-152	9	30				
Carbon Disulfide	73	84	48-146	12	30				
Carbon Tetrachloride	87	97	45-153	10	30				
Chlorobenzene	84	87	49-135	3	30				
Chloroethane	80	90	39-152	10	30				
Chloroform	90	95	61-142	4	30				
Chloromethane	93	86	51-163	9	30				
2-Chlorotoluene	80	85	42-146	5	30				
4-Chlorotoluene	81	83	39-145	0	30				
Cyclohexane	87	104	57-151	17	30				
1,2-Dibromo-3-chloropropane	97	100	30-139	2	30				
Dibromochloromethane	84	84	51-128	1	30				
1,2-Dibromoethane	92	95	54-129	1	30				
Dibromomethane	88	88	57-130	2	30				
1,2-Dichlorobenzene	73	79	36-133	6	30				
1,3-Dichlorobenzene	77	81	34-134	4	30				
1,4-Dichlorobenzene	76	78	35-136	2	30				
Dichlorodifluoromethane	89	88	26-151	3	30				
1,1-Dichloroethane	92	99	63-142	6	30				
1,2-Dichloroethane	108	107	68-131	2	30				
1,1-Dichloroethene	84	93	61-149	9	30				
cis-1,2-Dichloroethene	80	88	60-136	8	30				
trans-1,2-Dichloroethene	79	91	59-142	12	30				
1,2-Dichloropropane	89	88	62-135	3	30				
1,3-Dichloropropane	96	94	58-129	3	30				
2,2-Dichloropropane	89	94	53-147	4	30				
1,1-Dichloropropene	90	101	54-145	10	30				
cis-1,3-Dichloropropene	80	80	51-131	1	30				
trans-1,3-Dichloropropene	83	85	49-129	1	30				
Ethylbenzene	88	93	44-141	3	30				
Freon 113	91	98	56-156	7	30				
Hexachlorobutadiene	63	76	10-155	18	30				
2-Hexanone	115	109	32-160	7	30				
Isopropylbenzene	82	93	38-144	11	30				
p-Isopropyltoluene	76	85	29-152	11	30				
Methyl Acetate	142	135	48-161	6	30				
Methyl Tertiary Butyl Ether	94	96	55-129	0	30				
4-Methyl-2-pentanone	130	120	46-139	9	30				
Methylcyclohexane	78	99	39-168	22	30				
Methylene Chloride	80	87	61-141	7	30				
Naphthalene	63	76	10-138	19	30				
n-Propylbenzene	85	91	39-157	6	30				
Styrene	85	77	35-134	11	30				

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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280964
Reported: 12/27/11 at 01:47 PM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
1,1,1,2-Tetrachloroethane	82	87	52-130	4	30				
1,1,2,2-Tetrachloroethane	93	93	40-152	2	30				
Tetrachloroethene	87	97	42-149	9	30				
Toluene	91	92	50-146	0	30				
1,2,3-Trichlorobenzene	61	71	10-140	14	30				
1,2,4-Trichlorobenzene	57	68	10-136	16	30				
1,1,1-Trichloroethane	90	99	64-142	8	30				
1,1,2-Trichloroethane	92	93	54-139	1	30				
Trichloroethene	83	89	53-144	6	30				
Trichlorofluoromethane	114	115	47-163	0	30				
1,2,3-Trichloropropane	99	98	45-154	3	30				
1,2,4-Trimethylbenzene	76	85	37-149	10	30				
1,3,5-Trimethylbenzene	83	90	38-150	8	30				
Vinyl Chloride	85	88	50-154	3	30				
m+p-Xylene	84	88	44-137	4	30				
o-Xylene	81	86	42-137	6	30				
Batch number: 11349SLA026	Sample number(s): 6499034-6499037,6499039-6499052 UNSPK: 6499035								
Acenaphthene	95	90	41-135	5	30				
Acenaphthylene	103	99	47-137	4	30				
Anthracene	96	92	40-147	4	30				
Benzo(a)anthracene	92	90	32-150	2	30				
Benzo(a)pyrene	101	97	57-129	4	30				
Benzo(b)fluoranthene	102	97	53-131	5	30				
Benzo(g,h,i)perylene	99	95	60-123	4	30				
Benzo(k)fluoranthene	100	96	61-131	4	30				
Benzyl alcohol	95	91	63-128	4	30				
1,1'-Biphenyl	96	93	51-127	3	30				
4-Bromophenyl-phenylether	96	93	46-131	3	30				
Butylbenzylphthalate	97	93	26-161	4	30				
Di-n-butylphthalate	96	92	32-139	4	30				
Carbazole	93	89	36-148	4	30				
4-Chloro-3-methylphenol	94	88	33-144	7	30				
4-Chloroaniline	77	70	11-114	10	30				
bis(2-Chloroethoxy)methane	97	94	44-132	3	30				
bis(2-Chloroethyl)ether	95	92	45-139	3	30				
2-Chloronaphthalene	111	108	22-131	3	30				
2-Chlorophenol	97	93	29-151	4	30				
4-Chlorophenyl-phenylether	95	92	42-130	3	30				
Chrysene	92	89	76-114	4	30				
Dibenz(a,h)anthracene	98	96	37-151	3	30				
Dibenzofuran	94	90	38-148	5	30				
3,3'-Dichlorobenzidine	71	68	10-143	4	30				
2,4-Dichlorophenol	97	93	35-142	5	30				
Diethylphthalate	94	90	32-137	4	30				
2,4-Dimethylphenol	94	90	27-143	5	30				
Dimethylphthalate	96	92	26-141	5	30				
4,6-Dinitro-2-methylphenol	92	89	10-148	3	30				
2,4-Dinitrophenol	83	80	20-143	4	30				
2,4-Dinitrotoluene	95	91	27-147	4	30				
2,6-Dinitrotoluene	98	94	44-140	4	30				
1,4-Dioxane	54	53	31-77	2	30				
bis(2-Ethylhexyl)phthalate	96	93	38-151	3	30				

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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280964
Reported: 12/27/11 at 01:47 PM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Fluoranthene	94	90	48-122	4	30				
Fluorene	96	92	35-140	4	30				
Hexachlorobenzene	93	90	53-137	3	30				
Hexachlorocyclopentadiene	104	103	10-153	1	30				
Hexachloroethane	90	88	71-104	2	30				
Indeno(1,2,3-cd)pyrene	99	96	61-123	3	30				
Isophorone	95	91	54-122	5	30				
2-Methylnaphthalene	94	89	23-141	6	30				
2-Methylphenol	96	92	30-145	4	30				
4-Methylphenol	99	96	36-149	3	30				
2-Nitroaniline	96	92	46-146	4	30				
3-Nitroaniline	91	86	34-134	6	30				
4-Nitroaniline	75	71	26-124	5	30				
Nitrobenzene	96	92	37-139	3	30				
2-Nitrophenol	93	90	25-151	3	30				
4-Nitrophenol	80	76	15-149	5	30				
N-Nitroso-di-n-propylamine	87	84	46-128	3	30				
N-Nitrosodiphenylamine	97	96	33-148	1	30				
Di-n-octylphthalate	107	102	43-149	5	30				
Pentachlorophenol	90	86	23-145	4	30				
Phenanthrene	95	91	34-147	4	30				
Phenol	93	91	39-151	3	30				
Pyrene	94	90	76-124	4	30				
2,4,5-Trichlorophenol	97	93	25-143	4	30				
2,4,6-Trichlorophenol	97	94	41-142	4	30				
Batch number: 113491026001A	Sample number(s): 6499034-6499052 UNSPK: 6499035 BKG: 6499035								
Arsenic	106 (2)	74 (2)	75-125	4	20	12.3	11.6	6	20
Batch number: 113495705002	Sample number(s): 6499033 UNSPK: P499564 BKG: P499564								
Barium	99	100	78-118	0	20	0.0353	0.0358	1	20
Cadmium	101	101	83-116	0	20	0.00027 U	0.00027 U	0 (1)	20
Chromium	100	100	81-120	0	20	0.0027 J	0.0027 J	0 (1)	20
Lead	100	101	75-125	0	20	0.0029 J	0.0029 J	3 (1)	20
Selenium	101	102	75-125	1	20	0.0076 J	0.010 J	28* (1)	20
Silver	90	91	75-125	1	20	0.00091 U	0.00091 U	0 (1)	20
Batch number: 113495708001	Sample number(s): 6499034-6499052 UNSPK: 6499035 BKG: 6499035								
Barium	111	112	75-125	1	20	61.5	64.3	5	20
Cadmium	96	95	75-125	0	20	0.824	0.804	2 (1)	20
Chromium	130*	127*	75-125	1	20	17.7	17.2	3	20
Lead	106	97	75-125	5	20	12.0	11.7	2	20
Selenium	99	102	75-125	2	20	0.654 U	0.673 U	0 (1)	20
Silver	97	97	75-125	0	20	0.0798 U	0.0822 U	0 (1)	20
Batch number: 113495711001	Sample number(s): 6499034-6499052 UNSPK: 6499035 BKG: 6499035								
Mercury	99	94	80-120	6	20	0.0180 J	0.0211 J	16 (1)	20
Batch number: 113495713003	Sample number(s): 6499033 UNSPK: P500144 BKG: P500144								
Mercury	90	87	80-120	3	20	0.000026 U	0.000026 U	0 (1)	20
Batch number: 113496050001A	Sample number(s): 6499033 UNSPK: P499116 BKG: P499116								
Arsenic	117	132*	75-125	4	20	0.0219	0.0214	2	20

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280964
Reported: 12/27/11 at 01:47 PM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 11350820005A	Sample number(s): 6499034-6499044					BKG: 6499035			
Moisture						19.2	18.5	3	15
Moisture						19.2	18.5	3	15
Moisture Duplicate						19.2	18.5	3	15
Batch number: 11350820005B	Sample number(s): 6499045-6499052					BKG: 6499045			
Moisture						19.2	19.7	3	15

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 8260 Ext. Soil Master
Batch number: A113541AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
6499034	106	106	100	92
6499035	107	105	99	92
6499036	106	103	101	94
6499037	104	101	102	94
6499039	105	106	100	92
6499040	106	103	100	90
6499041	106	101	100	91
6499042	106	100	100	91
6499043	103	98	100	91
6499044	106	108	100	92
6499045	104	102	100	91
6499046	107	104	98	91
6499047	105	102	100	90
6499048	106	101	99	91
6499049	107	102	99	92
6499050	108	101	106	83
Blank	105	102	98	90
LCS	106	99	102	97
MS	106	103	101	94
MSD	104	101	102	94
Limits:	71-114	70-109	70-123	70-111

Analysis Name: 8260 Ext. Soil Master
Batch number: A113561AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
6499051	100	100	101	93
6499052	101	99	101	94
Blank	100	100	101	95
LCS	100	101	103	99
MS	98	102	105	98

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280964
Reported: 12/27/11 at 01:47 PM

Surrogate Quality Control

MSD	100	102	104	98
Limits:	71-114	70-109	70-123	70-111

Analysis Name: TCL 8270 (microwave)
Batch number: 11349SLA026

	Phenol-d6	2-Fluorophenol	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
6499034	88	89	81	85	90	95
6499035	90	93	83	86	91	98
6499036	93	96	83	89	94	99
6499037	89	92	80	86	90	95
6499039	90	92	85	86	90	99
6499040	89	90	85	83	90	100
6499041	85	87	79	79	84	92
6499042	89	90	81	82	87	97
6499043	88	89	83	82	90	99
6499044	89	90	81	81	90	95
6499045	85	88	82	81	88	97
6499046	89	92	83	82	91	94
6499047	93	96	84	87	93	102
6499048	87	91	82	82	89	98
6499049	89	93	83	84	92	98
6499050	88	92	78	84	89	97
6499051	87	90	84	82	91	98
6499052	86	92	81	83	90	98
Blank	90	94	92	89	94	103
LCS	97	100	92	93	98	102
MS	93	96	83	89	94	99
MSD	89	92	80	86	90	95
Limits:	42-130	39-136	28-139	45-123	56-121	43-124

Analysis Name: TCL SW846 Semivolatiles/Waters
Batch number: 11353WAA026

	2-Fluorophenol	Phenol-d6	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
6499033	43	25	96	96	98	113
Blank	49	35	94	95	98	114
LCS	57	43	92	97	100	109
LCSD	55	41	91	98	99	107
Limits:	10-98	10-74	22-150	52-120	63-114	34-118

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Analysis Request/ Environmental Services Chain of Custody

Lancaster Laboratories

1 of 4

For Lancaster Laboratories use only

Acct. # 11372 Group# 1280964 Sample # 6499033-52

COC # 274007

Please print. Instructions on reverse side correspond with circled numbers.

(1) Client: DOW Hanging Rock Acct. #:

Project Name/#: 420671-01-FS PWSID #:

Project Manager: Mark Holland P.O.#: 420671-01-FS 04

Sampler: OSaguona Ogbebor Quote #:

Name of state where samples were collected: Ohio

(2) Sample Identification	Date Collected	Time Collected	(3) Grab	Composite	Matrix (4) Soil	Water (Potable ☐ NPDES ☐)	Other	Total # of Containers	(5) Analyses Requested / Preservation Codes: VOCs	SVOCs	Metals	Moisture Content					Remarks
HGR-121311-EB01	12/13/11	1230	X			X		3		✓	✓						
S11-SS04-0002-121311	12/13/11	0850		X	X			4	✓	✓	✓	✓					
S11-SS04-0305-121311	12/13/11	0855		X	X			4	✓	✓	✓	✓					
S11-SS04-0305-121311 MS	12/13/11	0855		X	X			4	✓	✓	✓	✓					
S11-SS04-0305-121311 MSD	12/13/11	0855		X	X			4	✓	✓	✓	✓					
S11-SS04-0810-121311	12/13/11	0900		X	X			4	✓	✓	✓	✓					
S11-SS03-0002-121311	12/13/11	0920		X	X			4	✓	✓	✓	✓					
S11-SS03-0305-121311	12/13/11	0925		X	X			4	✓	✓	✓	✓					
S11-SS03-0810-121311	12/13/11	0930		X	X			4	✓	✓	✓	✓					
S11-SS02-0002-121311	12/13/11	0955		X	X			4	✓	✓	✓	✓					

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

For Lab Use Only
FSC:
SCR#:

(6) Temperature of samples upon receipt (if requested)

(7) **Turnaround Time Requested** (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed: NA
Rush results requested by (please circle): Phone Fax E-mail
Phone #: Fax #:
E-mail address:

(8) **Data Package Options** (please circle if required)
Type I (validation/NJ Reg)
Type II (Tier II)
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)
TX TRRP-13
MA MCP CT RCP
SDG Complete? Yes No
Site-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate volume.)
Internal COC Required? Yes / No

(9)

Relinquished by:	Date	Time	Received by:	Date	Time
OSaguona	12/13/11	1830			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
			Mary M	12/14/11	0926

Analysis Request/ Environmental Services Chain of Custody

Lancaster Laboratories

Page 2 of 4

For Lancaster Laboratories use only

Acct.# 11372 Group# 1280964 Sample # 6499033-52

COC # 276344

Please print. Instructions on reverse side correspond with circled numbers.

(1) Client: Dow Hanging Rock Acct. #:

Project Name/#: 420671.01.FS PWSID #:

Project Manager: Marie Holland P.O.#: 420671-04

Sampler: OSayuwa Ogbebor Quote #:

Name of state where samples were collected: Ohio

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate

N=HNO_3 B=NaOH

S=H_2SO_4 O=Other

(6) Temperature of samples upon receipt (if requested)

(2) Sample Identification	Date Collected	Time Collected	(3) Grab	(3) Composite	(4) Matrix: Soil	Water (Potable / NPDES)	Other	Total # of Containers	(5) Analyses Requested: VOCs	SVOCs	Metals	Moisture Content	Remarks
HGR-121311-FD01	12/13/11	—		X	X			4	✓	✓	✓	✓	
S11-SS02-0305-121311	12/13/11	1000		X	X			4	✓	✓	✓	✓	
~~S11-SS02-0805-121311~~	12/13							4	✓	✓	✓	✓	
S11-SS02-0810-121311	12/13/11	1005		X	X			4	✓	✓	✓	✓	
S11-SS01-0002-121311	12/13/11	1020		X	X			4	✓	✓	✓	✓	
S11-SS01-0308-121311	12/13/11	1025		X	X			4	✓	✓	✓	✓	
S11-SS01-0810-121311	12/13/11	1030		X	X			4	✓	✓	✓	✓	
S11-SS05-0002-121311	12/13/11	1050		X	X			4	✓	✓	✓	✓	
S11-SS05-0305-121311	12/13/11	1055		X	X			4	✓	✓	✓	✓	
S11-SS05-0810-121311	12/13/11	1100		X	X			4	✓	✓	✓	✓	

(7) **Turnaround Time Requested** (TAT) (please circle): Normal Rush

(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)

Date results are needed:

Rush results requested by (please circle): Phone Fax E-mail

Phone #: Fax #:

E-mail address:

(8) **Data Package Options** (please circle if required)

Type I (validation/NJ Reg)

Type II (Tier II)

Type III (Reduced NJ)

Type IV (CLP SOW)

Type VI (Raw Data Only)

TX TRRP-13

MA MCP CT RCP

SDG Complete? Yes No

Site-specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate volume.)

Internal COC Required? Yes / No

(9)

Relinquished by:	Date	Time	Received by:	Date	Time
OSayuwa	12/13/11	1830			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
			[signature]	12/14/11	0920

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
ug	microgram(s)	**mg**	milligram(s)
ml	milliliter(s)	**l**	liter(s)
m3	cubic meter(s)	**ul**	microliter(s)

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

J estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike sample not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*****	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

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ANALYTICAL RESULTS

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425

Prepared for:

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

December 30, 2011

Project: Dow Hanging Rock, OH

Submittal Date: 12/14/2011
Group Number: 1280965
SDG: DHR09
PO Number: 420671-04
Release Number: DHR09
State of Sample Origin: OH

Client Sample Description	Lancaster Labs (LLI) #
S19-SS01-0002-121311 Composite Soil Sample	6499053
S19-SS01-0305-121311 Composite Soil Sample	6499054
S19-SS01-0810-121311 Composite Soil Sample	6499055
S19-SS02-0002-121311 Composite Soil Sample	6499056
S19-SS02-0002-121311MS Composite Soil Sample	6499057
S19-SS02-0002-121311MSD Composite Soil Sample	6499058
S19-SS02-0002-121311DUP Composite Soil Sample	6499059
S19-SS02-0305-121311 Composite Soil Sample	6499060
S19-SS02-0810-121311 Composite Soil Sample	6499061
S19-SS02-1618-121311 Composite Soil Sample	6499062
S17-SS01-0002-121311 Composite Soil Sample	6499063
HGR-121311-FD02 Composite Soil Sample	6499064
S17-SS01-0305-121311 Composite Soil Sample	6499065
S17-SS01-0810-121311 Composite Soil Sample	6499066
S17-SS01-0608-121311 Composite Soil Sample	6499067
S17-SS01-1315-121311 Composite Soil Sample	6499068
121311TB Water Sample	6499069

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC	CH2M Hill, Inc.	Attn: Shane Lowe
COPY TO		
ELECTRONIC	CH2M Hill, Inc.	Attn: Rachel Grand

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

COPY TO
1 COPY TO Data Package Group

Questions? Contact your Client Services Representative
Wendy A Kozma at (717) 656-2300 Ext. 1522

Respectfully Submitted,

Lawrence M. Taylor
Senior Specialist

eurofins | Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Sample Description: S19-SS01-0002-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499053
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 13:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

191-2 SDG#: DHR09-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	38		7	0.84
10949	Benzene	71-43-2	0.5	U	0.5	0.84
10949	Bromobenzene	108-86-1	1	U	1	0.84
10949	Bromochloromethane	74-97-5	1	U	1	0.84
10949	Bromodichloromethane	75-27-4	1	U	1	0.84
10949	Bromoform	75-25-2	1	U	1	0.84
10949	Bromomethane	74-83-9	2	U	2	0.84
10949	2-Butanone	78-93-3	5	J	4	0.84
10949	n-Butylbenzene	104-51-8	1	U	1	0.84
10949	sec-Butylbenzene	135-98-8	1	U	1	0.84
10949	tert-Butylbenzene	98-06-6	1	U	1	0.84
10949	Carbon Disulfide	75-15-0	1	U	1	0.84
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.84
10949	Chlorobenzene	108-90-7	1	U	1	0.84
10949	Chloroethane	75-00-3	2	U	2	0.84
10949	Chloroform	67-66-3	1	U	1	0.84
10949	Chloromethane	74-87-3	2	U	2	0.84
10949	2-Chlorotoluene	95-49-8	1	U	1	0.84
10949	4-Chlorotoluene	106-43-4	1	U	1	0.84
10949	Cyclohexane	110-82-7	1	U	1	0.84
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.84
10949	Dibromochloromethane	124-48-1	1	U	1	0.84
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.84
10949	Dibromomethane	74-95-3	1	U	1	0.84
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.84
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.84
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.84
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.84
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.84
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.84
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.84
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.84
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.84
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.84
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.84
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.84
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.84
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.84
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.84
10949	Ethylbenzene	100-41-4	1	U	1	0.84
10949	Freon 113	76-13-1	2	U	2	0.84
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.84
10949	2-Hexanone	591-78-6	3	U	3	0.84
10949	Isopropylbenzene	98-82-8	1	U	1	0.84
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.84
10949	Methyl Acetate	79-20-9	2	U	2	0.84
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.84
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.84
10949	Methylcyclohexane	108-87-2	1	U	1	0.84
10949	Methylene Chloride	75-09-2	2	U	2	0.84
10949	Naphthalene	91-20-3	1	U	1	0.84

Sample Description: S19-SS01-0002-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499053
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 13:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

191-2 SDG#: DHR09-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.84
10949	Styrene	100-42-5	1	U	1	0.84
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.84
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.84
10949	Tetrachloroethene	127-18-4	1	U	1	0.84
10949	Toluene	108-88-3	1	U	1	0.84
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.84
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.84
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.84
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.84
10949	Trichloroethene	79-01-6	1	U	1	0.84
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.84
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.84
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.84
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.84
10949	Vinyl Acetate	108-05-4	2	U	2	0.84
10949	Vinyl Chloride	75-01-4	1	U	1	0.84
10949	m+p-Xylene	179601-23-1	1	U	1	0.84
10949	o-Xylene	95-47-6	1	U	1	0.84
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	5	J	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	5	J	4	1
10727	Benzo(a)anthracene	56-55-3	8	J	4	1
10727	Benzo(a)pyrene	50-32-8	17	J	4	1
10727	Benzo(b)fluoranthene	205-99-2	21		4	1
10727	Benzo(g,h,i)perylene	191-24-2	15	J	4	1
10727	Benzo(k)fluoranthene	207-08-9	14	J	4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	20	U	20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	79	U	79	1
10727	Di-n-butylphthalate	84-74-2	79	U	79	1
10727	Carbazole	86-74-8	20	U	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	8	U	8	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	15	J	4	1
10727	Dibenz(a,h)anthracene	53-70-3	9	J	4	1
10727	Dibenzofuran	132-64-9	20	U	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1
10727	Diethylphthalate	84-66-2	79	U	79	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	79	U	79	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1

Sample Description: S19-SS01-0002-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499053
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 13:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

191-2 SDG#: DHR09-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	400	U	400	1
10727	2,4-Dinitrotoluene	121-14-2	79	U	79	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	85	J	79	1
10727	Fluoranthene	206-44-0	19	J	4	1
10727	Fluorene	86-73-7	6	J	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	40	U	40	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	13	J	4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	8	J	4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	79	U	79	1
10727	4-Nitroaniline	100-01-6	79	U	79	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	79	U	79	1
10727	Pentachlorophenol	87-86-5	40	U	40	1
10727	Phenanthrene	85-01-8	22		4	1
10727	Phenol	108-95-2	20	U	20	1
10727	Pyrene	129-00-0	18	J	4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	100		0.0214	1
06949	Cadmium	7440-43-9	0.893		0.0238	1
06951	Chromium	7440-47-3	26.8		0.167	1
06955	Lead	7439-92-1	12.7		0.262	1
06936	Selenium	7782-49-2	0.810	U	0.810	1
06966	Silver	7440-22-4	0.0988	U	0.0988	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	12.5		0.0925	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0078	U	0.0078	1

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Analysis Report

Sample Description: S19-SS01-0002-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499053
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 13:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

191-2 SDG#: DHR09-01

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	16.0	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113561AA	12/22/2011 17:12	Chelsea B Eastep	0.84
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134826436	12/14/2011 14:13	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134826436	12/14/2011 14:13	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134826436	12/14/2011 14:12	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11350SLB026	12/17/2011 04:58	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11350SLB026	12/16/2011 18:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	113505708001	12/19/2011 09:31	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113505708001	12/19/2011 09:31	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113505708001	12/19/2011 09:31	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113505708001	12/19/2011 09:31	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113505708001	12/19/2011 09:31	Eric L Eby	1
06966	Silver	SW-846 6010B	1	113505708001	12/19/2011 09:31	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113501026001A	12/28/2011 17:16	David K Beck	2
00159	Mercury	SW-846 7471A	1	113505711001	12/19/2011 07:11	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113505708001	12/18/2011 10:32	James L Mertz	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113501026001	12/18/2011 11:18	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113505711001	12/18/2011 13:20	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11350820003A	12/16/2011 21:15	Scott W Freisher	1

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Analysis Report

Sample Description: S19-SS01-0305-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499054
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 14:00 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

19305 SDG#: DHR09-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	22	J	8	0.95
10949	Benzene	71-43-2	0.6	U	0.6	0.95
10949	Bromobenzene	108-86-1	1	U	1	0.95
10949	Bromochloromethane	74-97-5	1	U	1	0.95
10949	Bromodichloromethane	75-27-4	1	U	1	0.95
10949	Bromoform	75-25-2	1	U	1	0.95
10949	Bromomethane	74-83-9	2	U	2	0.95
10949	2-Butanone	78-93-3	5	U	5	0.95
10949	n-Butylbenzene	104-51-8	1	U	1	0.95
10949	sec-Butylbenzene	135-98-8	1	U	1	0.95
10949	tert-Butylbenzene	98-06-6	1	U	1	0.95
10949	Carbon Disulfide	75-15-0	1	U	1	0.95
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.95
10949	Chlorobenzene	108-90-7	1	U	1	0.95
10949	Chloroethane	75-00-3	2	U	2	0.95
10949	Chloroform	67-66-3	1	U	1	0.95
10949	Chloromethane	74-87-3	2	U	2	0.95
10949	2-Chlorotoluene	95-49-8	1	U	1	0.95
10949	4-Chlorotoluene	106-43-4	1	U	1	0.95
10949	Cyclohexane	110-82-7	1	U	1	0.95
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.95
10949	Dibromochloromethane	124-48-1	1	U	1	0.95
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.95
10949	Dibromomethane	74-95-3	1	U	1	0.95
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.95
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.95
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.95
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.95
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.95
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.95
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.95
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.95
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.95
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.95
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.95
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.95
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.95
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.95
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.95
10949	Ethylbenzene	100-41-4	1	U	1	0.95
10949	Freon 113	76-13-1	2	U	2	0.95
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.95
10949	2-Hexanone	591-78-6	3	U	3	0.95
10949	Isopropylbenzene	98-82-8	1	U	1	0.95
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.95
10949	Methyl Acetate	79-20-9	2	U	2	0.95
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.6	U	0.6	0.95
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.95
10949	Methylcyclohexane	108-87-2	1	U	1	0.95
10949	Methylene Chloride	75-09-2	2	U	2	0.95
10949	Naphthalene	91-20-3	1	U	1	0.95

Sample Description: S19-SS01-0305-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499054
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 14:00 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

19305 SDG#: DHR09-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.95
10949	Styrene	100-42-5	1	U	1	0.95
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.95
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.95
10949	Tetrachloroethene	127-18-4	1	U	1	0.95
10949	Toluene	108-88-3	1	U	1	0.95
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.95
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.95
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.95
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.95
10949	Trichloroethene	79-01-6	1	U	1	0.95
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.95
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.95
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.95
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.95
10949	Vinyl Acetate	108-05-4	2	U	2	0.95
10949	Vinyl Chloride	75-01-4	1	U	1	0.95
10949	m+p-Xylene	179601-23-1	1	U	1	0.95
10949	o-Xylene	95-47-6	1	U	1	0.95
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	6	J	4	1
10727	Benzo(b)fluoranthene	205-99-2	6	J	4	1
10727	Benzo(g,h,i)perylene	191-24-2	7	J	4	1
10727	Benzo(k)fluoranthene	207-08-9	5	J	4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	20	U	20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	80	U	80	1
10727	Di-n-butylphthalate	84-74-2	80	U	80	1
10727	Carbazole	86-74-8	20	U	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	8	U	8	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	6	J	4	1
10727	Dibenzofuran	132-64-9	20	U	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1
10727	Diethylphthalate	84-66-2	80	U	80	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	80	U	80	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1

Sample Description: S19-SS01-0305-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499054
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

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Denver CO 80224

19305 SDG#: DHR09-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	400	U	400	1
10727	2,4-Dinitrotoluene	121-14-2	80	U	80	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	160	J	80	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	40	U	40	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	6	J	4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	80	U	80	1
10727	4-Nitroaniline	100-01-6	80	U	80	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	80	U	80	1
10727	Pentachlorophenol	87-86-5	40	U	40	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	20	U	20	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	54.2		0.0212	1
06949	Cadmium	7440-43-9	0.767		0.0235	1
06951	Chromium	7440-47-3	11.3		0.165	1
06955	Lead	7439-92-1	10.2		0.259	1
06936	Selenium	7782-49-2	0.800	U	0.800	1
06966	Silver	7440-22-4	0.0977	U	0.0977	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	9.82		0.0915	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0079	U	0.0079	1

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Analysis Report

Sample Description: S19-SS01-0305-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499054
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 14:00 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

19305 SDG#: DHR09-02

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	16.7	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113561AA	12/22/2011 17:35	Chelsea B Eastep	0.95
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134826436	12/14/2011 14:15	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134826436	12/14/2011 14:15	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134826436	12/14/2011 14:14	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11350SLB026	12/17/2011 05:23	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11350SLB026	12/16/2011 18:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	113505708001	12/19/2011 09:42	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113505708001	12/19/2011 09:42	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113505708001	12/19/2011 09:42	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113505708001	12/19/2011 09:42	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113505708001	12/19/2011 09:42	Eric L Eby	1
06966	Silver	SW-846 6010B	1	113505708001	12/19/2011 09:42	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113501026001A	12/28/2011 17:18	David K Beck	2
00159	Mercury	SW-846 7471A	1	113505711001	12/19/2011 07:12	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113505708001	12/18/2011 10:32	James L Mertz	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113501026001	12/18/2011 11:18	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113505711001	12/18/2011 13:20	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11350820003A	12/16/2011 21:15	Scott W Freisher	1

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Analysis Report

Sample Description: S19-SS01-0810-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499055
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 14:20 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

19810 SDG#: DHR09-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	17	J	8	0.9
10949	Benzene	71-43-2	0.6	U	0.6	0.9
10949	Bromobenzene	108-86-1	1	U	1	0.9
10949	Bromochloromethane	74-97-5	1	U	1	0.9
10949	Bromodichloromethane	75-27-4	1	U	1	0.9
10949	Bromoform	75-25-2	1	U	1	0.9
10949	Bromomethane	74-83-9	2	U	2	0.9
10949	2-Butanone	78-93-3	5	U	5	0.9
10949	n-Butylbenzene	104-51-8	1	U	1	0.9
10949	sec-Butylbenzene	135-98-8	1	U	1	0.9
10949	tert-Butylbenzene	98-06-6	1	U	1	0.9
10949	Carbon Disulfide	75-15-0	1	U	1	0.9
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.9
10949	Chlorobenzene	108-90-7	1	U	1	0.9
10949	Chloroethane	75-00-3	2	U	2	0.9
10949	Chloroform	67-66-3	1	U	1	0.9
10949	Chloromethane	74-87-3	2	U	2	0.9
10949	2-Chlorotoluene	95-49-8	1	U	1	0.9
10949	4-Chlorotoluene	106-43-4	1	U	1	0.9
10949	Cyclohexane	110-82-7	1	U	1	0.9
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.9
10949	Dibromochloromethane	124-48-1	1	U	1	0.9
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.9
10949	Dibromomethane	74-95-3	1	U	1	0.9
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.9
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.9
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.9
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.9
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.9
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.9
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.9
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.9
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.9
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.9
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.9
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.9
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.9
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.9
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.9
10949	Ethylbenzene	100-41-4	1	U	1	0.9
10949	Freon 113	76-13-1	2	U	2	0.9
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.9
10949	2-Hexanone	591-78-6	3	U	3	0.9
10949	Isopropylbenzene	98-82-8	1	U	1	0.9
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.9
10949	Methyl Acetate	79-20-9	2	U	2	0.9
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.6	U	0.6	0.9
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.9
10949	Methylcyclohexane	108-87-2	1	U	1	0.9
10949	Methylene Chloride	75-09-2	2	U	2	0.9
10949	Naphthalene	91-20-3	1	U	1	0.9

Sample Description: S19-SS01-0810-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499055
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 14:20 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

19810 SDG#: DHR09-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.9
10949	Styrene	100-42-5	1	U	1	0.9
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.9
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.9
10949	Tetrachloroethene	127-18-4	1	U	1	0.9
10949	Toluene	108-88-3	1	U	1	0.9
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.9
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.9
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.9
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.9
10949	Trichloroethene	79-01-6	1	U	1	0.9
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.9
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.9
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.9
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.9
10949	Vinyl Acetate	108-05-4	2	U	2	0.9
10949	Vinyl Chloride	75-01-4	1	U	1	0.9
10949	m+p-Xylene	179601-23-1	1	U	1	0.9
10949	o-Xylene	95-47-6	1	U	1	0.9
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	7	J	4	1
10727	Benzo(b)fluoranthene	205-99-2	8	J	4	1
10727	Benzo(g,h,i)perylene	191-24-2	8	J	4	1
10727	Benzo(k)fluoranthene	207-08-9	6	J	4	1
10727	Benzyl alcohol	100-51-6	210	U	210	1
10727	1,1'-Biphenyl	92-52-4	21	U	21	1
10727	4-Bromophenyl-phenylether	101-55-3	21	U	21	1
10727	Butylbenzylphthalate	85-68-7	85	U	85	1
10727	Di-n-butylphthalate	84-74-2	85	U	85	1
10727	Carbazole	86-74-8	21	U	21	1
10727	4-Chloro-3-methylphenol	59-50-7	21	U	21	1
10727	4-Chloroaniline	106-47-8	21	U	21	1
10727	bis(2-Chloroethoxy)methane	111-91-1	21	U	21	1
10727	bis(2-Chloroethyl)ether	111-44-4	21	U	21	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	21	U	21	1
10727	4-Chlorophenyl-phenylether	7005-72-3	21	U	21	1
10727	Chrysene	218-01-9	6	J	4	1
10727	Dibenz(a,h)anthracene	53-70-3	7	J	4	1
10727	Dibenzofuran	132-64-9	21	U	21	1
10727	3,3'-Dichlorobenzidine	91-94-1	130	U	130	1
10727	2,4-Dichlorophenol	120-83-2	21	U	21	1
10727	Diethylphthalate	84-66-2	85	U	85	1
10727	2,4-Dimethylphenol	105-67-9	21	U	21	1
10727	Dimethylphthalate	131-11-3	85	U	85	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	210	U	210	1

Sample Description: S19-SS01-0810-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499055
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 14:20 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

19810 SDG#: DHR09-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	430	U	430	1
10727	2,4-Dinitrotoluene	121-14-2	85	U	85	1
10727	2,6-Dinitrotoluene	606-20-2	21	U	21	1
10727	1,4-Dioxane	123-91-1	130	U	130	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	85	U	85	1
10727	Fluoranthene	206-44-0	6	J	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	210	U	210	1
10727	Hexachloroethane	67-72-1	43	U	43	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	8	J	4	1
10727	Isophorone	78-59-1	21	U	21	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	21	U	21	1
10727	4-Methylphenol	106-44-5	21	U	21	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	21	U	21	1
10727	3-Nitroaniline	99-09-2	85	U	85	1
10727	4-Nitroaniline	100-01-6	85	U	85	1
10727	Nitrobenzene	98-95-3	21	U	21	1
10727	2-Nitrophenol	88-75-5	21	U	21	1
10727	4-Nitrophenol	100-02-7	210	U	210	1
10727	N-Nitroso-di-n-propylamine	621-64-7	21	U	21	1
10727	N-Nitrosodiphenylamine	86-30-6	21	U	21	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	85	U	85	1
10727	Pentachlorophenol	87-86-5	43	U	43	1
10727	Phenanthrene	85-01-8	6	J	4	1
10727	Phenol	108-95-2	21	U	21	1
10727	Pyrene	129-00-0	7	J	4	1
10727	2,4,5-Trichlorophenol	95-95-4	21	U	21	1
10727	2,4,6-Trichlorophenol	88-06-2	21	U	21	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	66.9		0.0226	1
06949	Cadmium	7440-43-9	0.919		0.0251	1
06951	Chromium	7440-47-3	15.4		0.176	1
06955	Lead	7439-92-1	12.6		0.277	1
06936	Selenium	7782-49-2	0.855	U	0.855	1
06966	Silver	7440-22-4	0.104	U	0.104	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	11.4		0.0986	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0089	U	0.0089	1

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Analysis Report

Sample Description: S19-SS01-0810-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499055
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 14:20 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

19810 SDG#: DHR09-03

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	22.0	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113561AA	12/22/2011 17:57	Chelsea B Eastep	0.9
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134826436	12/14/2011 14:18	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134826436	12/14/2011 14:18	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134826436	12/14/2011 14:18	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11350SLB026	12/17/2011 05:48	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11350SLB026	12/16/2011 18:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	113505708001	12/19/2011 09:45	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113505708001	12/19/2011 09:45	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113505708001	12/19/2011 09:45	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113505708001	12/19/2011 09:45	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113505708001	12/20/2011 11:59	Joanne M Gates	1
06966	Silver	SW-846 6010B	1	113505708001	12/19/2011 09:45	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113501026001A	12/28/2011 17:26	David K Beck	2
00159	Mercury	SW-846 7471A	1	113505711001	12/19/2011 07:14	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113505708001	12/18/2011 10:32	James L Mertz	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113501026001	12/18/2011 11:18	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113505711001	12/18/2011 13:20	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11350820003A	12/16/2011 21:15	Scott W Freisher	1

Sample Description: S19-SS02-0002-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499056
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 14:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

192-2 SDG#: DHR09-04BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	130		7	0.83
10949	Benzene	71-43-2	0.5	U	0.5	0.83
10949	Bromobenzene	108-86-1	1	U	1	0.83
10949	Bromochloromethane	74-97-5	1	U	1	0.83
10949	Bromodichloromethane	75-27-4	1	U	1	0.83
10949	Bromoform	75-25-2	1	U	1	0.83
10949	Bromomethane	74-83-9	2	U	2	0.83
10949	2-Butanone	78-93-3	22		4	0.83
10949	n-Butylbenzene	104-51-8	1	U	1	0.83
10949	sec-Butylbenzene	135-98-8	1	U	1	0.83
10949	tert-Butylbenzene	98-06-6	1	U	1	0.83
10949	Carbon Disulfide	75-15-0	1	U	1	0.83
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.83
10949	Chlorobenzene	108-90-7	1	U	1	0.83
10949	Chloroethane	75-00-3	2	U	2	0.83
10949	Chloroform	67-66-3	1	U	1	0.83
10949	Chloromethane	74-87-3	2	U	2	0.83
10949	2-Chlorotoluene	95-49-8	1	U	1	0.83
10949	4-Chlorotoluene	106-43-4	1	U	1	0.83
10949	Cyclohexane	110-82-7	1	U	1	0.83
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.83
10949	Dibromochloromethane	124-48-1	1	U	1	0.83
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.83
10949	Dibromomethane	74-95-3	1	U	1	0.83
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.83
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.83
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.83
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.83
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.83
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.83
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.83
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.83
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.83
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.83
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.83
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.83
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.83
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.83
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.83
10949	Ethylbenzene	100-41-4	1	U	1	0.83
10949	Freon 113	76-13-1	2	U	2	0.83
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.83
10949	2-Hexanone	591-78-6	3	U	3	0.83
10949	Isopropylbenzene	98-82-8	1	U	1	0.83
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.83
10949	Methyl Acetate	79-20-9	2	U	2	0.83
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.83
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.83
10949	Methylcyclohexane	108-87-2	1	U	1	0.83
10949	Methylene Chloride	75-09-2	2	U	2	0.83
10949	Naphthalene	91-20-3	1	U	1	0.83

Sample Description: S19-SS02-0002-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499056
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 14:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

192-2 SDG#: DHR09-04BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.83
10949	Styrene	100-42-5	1	U	1	0.83
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.83
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.83
10949	Tetrachloroethene	127-18-4	1	U	1	0.83
10949	Toluene	108-88-3	1	U	1	0.83
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.83
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.83
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.83
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.83
10949	Trichloroethene	79-01-6	1	U	1	0.83
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.83
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.83
10949	1,2,4-Trimethylbenzene	95-63-6	2	J	1	0.83
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.83
10949	Vinyl Acetate	108-05-4	2	U	2	0.83
10949	Vinyl Chloride	75-01-4	1	U	1	0.83
10949	m+p-Xylene	179601-23-1	1	U	1	0.83
10949	o-Xylene	95-47-6	1	U	1	0.83
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	8	J	4	1
10727	Benzo(a)anthracene	56-55-3	20	J	4	1
10727	Benzo(a)pyrene	50-32-8	35		4	1
10727	Benzo(b)fluoranthene	205-99-2	50		4	1
10727	Benzo(g,h,i)perylene	191-24-2	26		4	1
10727	Benzo(k)fluoranthene	207-08-9	34		4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	66		20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	81	U	81	1
10727	Di-n-butylphthalate	84-74-2	81	U	81	1
10727	Carbazole	86-74-8	20	U	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	30		4	1
10727	Dibenz(a,h)anthracene	53-70-3	12	J	4	1
10727	Dibenzofuran	132-64-9	20	U	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1
10727	Diethylphthalate	84-66-2	81	U	81	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	81	U	81	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1

Sample Description: S19-SS02-0002-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499056
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 14:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

192-2 SDG#: DHR09-04BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	410	U	410	1
10727	2,4-Dinitrotoluene	121-14-2	81	U	81	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	81	U	81	1
10727	Fluoranthene	206-44-0	28		4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	41	U	41	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	22		4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	8	J	4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	81	U	81	1
10727	4-Nitroaniline	100-01-6	81	U	81	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	81	U	81	1
10727	Pentachlorophenol	87-86-5	41	U	41	1
10727	Phenanthrene	85-01-8	22		4	1
10727	Phenol	108-95-2	34	J	20	1
10727	Pyrene	129-00-0	28		4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	83.1		0.0218	1
06949	Cadmium	7440-43-9	0.974		0.0242	1
06951	Chromium	7440-47-3	17.9		0.169	1
06955	Lead	7439-92-1	13.7		0.266	1
06936	Selenium	7782-49-2	0.822	U	0.822	1
06966	Silver	7440-22-4	0.100	U	0.100	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	11.3		0.0948	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0150	J	0.0085	1

Sample Description: S19-SS02-0002-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499056
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 14:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

192-2 SDG#: DHR09-04BKG

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	18.1	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113561AA	12/22/2011 13:48	Chelsea B Eastep	0.83
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134826436	12/14/2011 14:20	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134826436	12/14/2011 14:21	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134826436	12/14/2011 14:20	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11350SLB026	12/17/2011 03:42	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11350SLB026	12/16/2011 18:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	113505708001	12/19/2011 09:05	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113505708001	12/19/2011 09:05	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113505708001	12/19/2011 09:05	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113505708001	12/19/2011 09:05	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113505708001	12/19/2011 09:05	Eric L Eby	1
06966	Silver	SW-846 6010B	1	113505708001	12/19/2011 09:05	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113501026001A	12/28/2011 17:00	David K Beck	2
00159	Mercury	SW-846 7471A	1	113505711001	12/19/2011 07:15	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113505708001	12/18/2011 10:32	James L Mertz	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113501026001	12/18/2011 11:18	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113505711001	12/18/2011 13:20	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11350820003A	12/16/2011 21:15	Scott W Freisher	1

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Analysis Report

Sample Description: S19-SS02-0002-121311MS Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499057
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 14:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

192-2 SDG#: DHR09-04MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg	ug/kg	
10949	Acetone	67-64-1	330	8	0.9
10949	Benzene	71-43-2	20	0.6	0.9
10949	Bromobenzene	108-86-1	18	1	0.9
10949	Bromochloromethane	74-97-5	19	1	0.9
10949	Bromodichloromethane	75-27-4	19	1	0.9
10949	Bromoform	75-25-2	18	1	0.9
10949	Bromomethane	74-83-9	21	2	0.9
10949	2-Butanone	78-93-3	250	4	0.9
10949	n-Butylbenzene	104-51-8	16	1	0.9
10949	sec-Butylbenzene	135-98-8	17	1	0.9
10949	tert-Butylbenzene	98-06-6	17	1	0.9
10949	Carbon Disulfide	75-15-0	16	1	0.9
10949	Carbon Tetrachloride	56-23-5	19	1	0.9
10949	Chlorobenzene	108-90-7	18	1	0.9
10949	Chloroethane	75-00-3	18	2	0.9
10949	Chloroform	67-66-3	20	1	0.9
10949	Chloromethane	74-87-3	20	2	0.9
10949	2-Chlorotoluene	95-49-8	18	1	0.9
10949	4-Chlorotoluene	106-43-4	18	1	0.9
10949	Cyclohexane	110-82-7	19	1	0.9
10949	1,2-Dibromo-3-chloropropane	96-12-8	21	2	0.9
10949	Dibromochloromethane	124-48-1	19	1	0.9
10949	1,2-Dibromoethane	106-93-4	20	1	0.9
10949	Dibromomethane	74-95-3	20	1	0.9
10949	1,2-Dichlorobenzene	95-50-1	16	1	0.9
10949	1,3-Dichlorobenzene	541-73-1	17	1	0.9
10949	1,4-Dichlorobenzene	106-46-7	17	1	0.9
10949	Dichlorodifluoromethane	75-71-8	20	2	0.9
10949	1,1-Dichloroethane	75-34-3	20	1	0.9
10949	1,2-Dichloroethane	107-06-2	24	1	0.9
10949	1,1-Dichloroethene	75-35-4	19	1	0.9
10949	cis-1,2-Dichloroethene	156-59-2	18	1	0.9
10949	trans-1,2-Dichloroethene	156-60-5	18	1	0.9
10949	1,2-Dichloropropane	78-87-5	20	1	0.9
10949	1,3-Dichloropropane	142-28-9	21	1	0.9
10949	2,2-Dichloropropane	594-20-7	20	1	0.9
10949	1,1-Dichloropropene	563-58-6	20	1	0.9
10949	cis-1,3-Dichloropropene	10061-01-5	18	1	0.9
10949	trans-1,3-Dichloropropene	10061-02-6	18	1	0.9
10949	Ethylbenzene	100-41-4	20	1	0.9
10949	Freon 113	76-13-1	20	2	0.9
10949	Hexachlorobutadiene	87-68-3	14	2	0.9
10949	2-Hexanone	591-78-6	130	3	0.9
10949	Isopropylbenzene	98-82-8	18	1	0.9
10949	p-Isopropyltoluene	99-87-6	17	1	0.9
10949	Methyl Acetate	79-20-9	31	2	0.9
10949	Methyl Tertiary Butyl Ether	1634-04-4	21	0.6	0.9
10949	4-Methyl-2-pentanone	108-10-1	140	3	0.9
10949	Methylcyclohexane	108-87-2	17	1	0.9
10949	Methylene Chloride	75-09-2	18	2	0.9
10949	Naphthalene	91-20-3	14	1	0.9

Sample Description: S19-SS02-0002-121311MS Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499057
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 14:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

192-2 SDG#: DHR09-04MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**	**ug/kg**	
10949	n-Propylbenzene	103-65-1	19	1	0.9
10949	Styrene	100-42-5	19	1	0.9
10949	1,1,1,2-Tetrachloroethane	630-20-6	18	1	0.9
10949	1,1,2,2-Tetrachloroethane	79-34-5	21	1	0.9
10949	Tetrachloroethene	127-18-4	19	1	0.9
10949	Toluene	108-88-3	20	1	0.9
10949	1,2,3-Trichlorobenzene	87-61-6	14	1	0.9
10949	1,2,4-Trichlorobenzene	120-82-1	13	1	0.9
10949	1,1,1-Trichloroethane	71-55-6	20	1	0.9
10949	1,1,2-Trichloroethane	79-00-5	20	1	0.9
10949	Trichloroethene	79-01-6	18	1	0.9
10949	Trichlorofluoromethane	75-69-4	25	2	0.9
10949	1,2,3-Trichloropropane	96-18-4	22	1	0.9
10949	1,2,4-Trimethylbenzene	95-63-6	18	1	0.9
10949	1,3,5-Trimethylbenzene	108-67-8	18	1	0.9
10949	Vinyl Chloride	75-01-4	19	1	0.9
10949	m+p-Xylene	179601-23-1	37	1	0.9
10949	o-Xylene	95-47-6	18	1	0.9
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**	**ug/kg**	
10727	Acenaphthene	83-32-9	1,900	4	1
10727	Acenaphthylene	208-96-8	2,100	4	1
10727	Anthracene	120-12-7	1,900	4	1
10727	Benzo(a)anthracene	56-55-3	1,800	4	1
10727	Benzo(a)pyrene	50-32-8	1,900	4	1
10727	Benzo(b)fluoranthene	205-99-2	1,900	4	1
10727	Benzo(g,h,i)perylene	191-24-2	1,900	4	1
10727	Benzo(k)fluoranthene	207-08-9	1,900	4	1
10727	Benzyl alcohol	100-51-6	1,900	200	1
10727	1,1'-Biphenyl	92-52-4	2,000	20	1
10727	4-Bromophenyl-phenylether	101-55-3	2,000	20	1
10727	Butylbenzylphthalate	85-68-7	1,900	81	1
10727	Di-n-butylphthalate	84-74-2	1,900	81	1
10727	Carbazole	86-74-8	1,800	20	1
10727	4-Chloro-3-methylphenol	59-50-7	1,700	20	1
10727	4-Chloroaniline	106-47-8	1,400	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	1,900	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	2,000	20	1
10727	2-Chloronaphthalene	91-58-7	2,100	9	1
10727	2-Chlorophenol	95-57-8	1,900	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	1,900	20	1
10727	Chrysene	218-01-9	1,800	4	1
10727	Dibenz(a,h)anthracene	53-70-3	1,900	4	1
10727	Dibenzofuran	132-64-9	1,900	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	1,400	120	1
10727	2,4-Dichlorophenol	120-83-2	1,900	20	1
10727	Diethylphthalate	84-66-2	1,800	81	1
10727	2,4-Dimethylphenol	105-67-9	1,700	20	1
10727	Dimethylphthalate	131-11-3	1,900	81	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	1,800	200	1
10727	2,4-Dinitrophenol	51-28-5	2,800	410	1

Sample Description: S19-SS02-0002-121311MS Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499057
LLI Group # 1280965
Account # 11372

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Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

192-2 SDG#: DHR09-04MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**	**ug/kg**	
10727	2,4-Dinitrotoluene	121-14-2	1,800	81	1
10727	2,6-Dinitrotoluene	606-20-2	1,900	20	1
10727	1,4-Dioxane	123-91-1	1,000	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	1,900	81	1
10727	Fluoranthene	206-44-0	1,800	4	1
10727	Fluorene	86-73-7	1,900	4	1
10727	Hexachlorobenzene	118-74-1	1,900	4	1
10727	Hexachlorocyclopentadiene	77-47-4	3,700	200	1
10727	Hexachloroethane	67-72-1	1,800	41	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	1,900	4	1
10727	Isophorone	78-59-1	1,900	20	1
10727	2-Methylnaphthalene	91-57-6	1,800	4	1
10727	2-Methylphenol	95-48-7	1,900	20	1
10727	4-Methylphenol	106-44-5	1,900	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.				
10727	2-Nitroaniline	88-74-4	1,900	20	1
10727	3-Nitroaniline	99-09-2	1,700	81	1
10727	4-Nitroaniline	100-01-6	1,400	81	1
10727	Nitrobenzene	98-95-3	1,900	20	1
10727	2-Nitrophenol	88-75-5	1,900	20	1
10727	4-Nitrophenol	100-02-7	1,500	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	1,800	20	1
10727	N-Nitrosodiphenylamine	86-30-6	2,000	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.				
10727	Di-n-octylphthalate	117-84-0	2,000	81	1
10727	Pentachlorophenol	87-86-5	1,300	41	1
10727	Phenanthrene	85-01-8	1,900	4	1
10727	Phenol	108-95-2	1,900	20	1
10727	Pyrene	129-00-0	1,900	4	1
10727	2,4,5-Trichlorophenol	95-95-4	1,900	20	1
10727	2,4,6-Trichlorophenol	88-06-2	1,800	20	1
Metals	**SW-846 6010B**		**mg/kg**	**mg/kg**	
06946	Barium	7440-39-3	330	0.0218	1
06949	Cadmium	7440-43-9	6.66	0.0242	1
06951	Chromium	7440-47-3	45.5	0.169	1
06955	Lead	7439-92-1	30.7	0.266	1
06936	Selenium	7782-49-2	17.5	0.822	1
06966	Silver	7440-22-4	5.54	0.100	1
	SW-846 6020		**mg/kg**	**mg/kg**	
06125	Arsenic	7440-38-2	14.0	0.0967	2
	SW-846 7471A		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.198	0.0081	1

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Analysis Report

Sample Description: S19-SS02-0002-121311MS Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499057
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 14:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

192-2 SDG#: DHR09-04MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00118	Moisture	n.a.	18.1	0.50	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113561AA	12/22/2011 14:33	Chelsea B Eastep	0.9
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134826436	12/14/2011 14:22	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134826436	12/14/2011 14:23	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134826436	12/14/2011 14:22	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11350SLB026	12/17/2011 04:08	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11350SLB026	12/16/2011 18:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	113505708001	12/19/2011 09:16	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113505708001	12/19/2011 09:16	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113505708001	12/19/2011 09:16	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113505708001	12/19/2011 09:16	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113505708001	12/19/2011 09:16	Eric L Eby	1
06966	Silver	SW-846 6010B	1	113505708001	12/19/2011 09:16	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113501026001A	12/28/2011 17:08	David K Beck	2
00159	Mercury	SW-846 7471A	1	113505711001	12/19/2011 07:19	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113505708001	12/18/2011 10:32	James L Mertz	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113501026001	12/18/2011 11:18	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113505711001	12/18/2011 13:20	James L Mertz	1
00118	Moisture	SM20 2540 G	1	11350820003A	12/16/2011 21:15	Scott W Freisher	1

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Analysis Report

Sample Description: S19-SS02-0002-121311MSD Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499058
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 14:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

192-2 SDG#: DHR09-04MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg	ug/kg	
10949	Acetone	67-64-1	300	8	0.89
10949	Benzene	71-43-2	21	0.5	0.89
10949	Bromobenzene	108-86-1	19	1	0.89
10949	Bromochloromethane	74-97-5	20	1	0.89
10949	Bromodichloromethane	75-27-4	19	1	0.89
10949	Bromoform	75-25-2	18	1	0.89
10949	Bromomethane	74-83-9	21	2	0.89
10949	2-Butanone	78-93-3	220	4	0.89
10949	n-Butylbenzene	104-51-8	18	1	0.89
10949	sec-Butylbenzene	135-98-8	20	1	0.89
10949	tert-Butylbenzene	98-06-6	19	1	0.89
10949	Carbon Disulfide	75-15-0	18	1	0.89
10949	Carbon Tetrachloride	56-23-5	21	1	0.89
10949	Chlorobenzene	108-90-7	19	1	0.89
10949	Chloroethane	75-00-3	20	2	0.89
10949	Chloroform	67-66-3	21	1	0.89
10949	Chloromethane	74-87-3	19	2	0.89
10949	2-Chlorotoluene	95-49-8	18	1	0.89
10949	4-Chlorotoluene	106-43-4	18	1	0.89
10949	Cyclohexane	110-82-7	23	1	0.89
10949	1,2-Dibromo-3-chloropropane	96-12-8	22	2	0.89
10949	Dibromochloromethane	124-48-1	18	1	0.89
10949	1,2-Dibromoethane	106-93-4	21	1	0.89
10949	Dibromomethane	74-95-3	19	1	0.89
10949	1,2-Dichlorobenzene	95-50-1	17	1	0.89
10949	1,3-Dichlorobenzene	541-73-1	18	1	0.89
10949	1,4-Dichlorobenzene	106-46-7	17	1	0.89
10949	Dichlorodifluoromethane	75-71-8	19	2	0.89
10949	1,1-Dichloroethane	75-34-3	22	1	0.89
10949	1,2-Dichloroethane	107-06-2	23	1	0.89
10949	1,1-Dichloroethene	75-35-4	20	1	0.89
10949	cis-1,2-Dichloroethene	156-59-2	19	1	0.89
10949	trans-1,2-Dichloroethene	156-60-5	20	1	0.89
10949	1,2-Dichloropropane	78-87-5	19	1	0.89
10949	1,3-Dichloropropane	142-28-9	21	1	0.89
10949	2,2-Dichloropropane	594-20-7	21	1	0.89
10949	1,1-Dichloropropene	563-58-6	22	1	0.89
10949	cis-1,3-Dichloropropene	10061-01-5	17	1	0.89
10949	trans-1,3-Dichloropropene	10061-02-6	18	1	0.89
10949	Ethylbenzene	100-41-4	20	1	0.89
10949	Freon 113	76-13-1	21	2	0.89
10949	Hexachlorobutadiene	87-68-3	17	2	0.89
10949	2-Hexanone	591-78-6	120	3	0.89
10949	Isopropylbenzene	98-82-8	20	1	0.89
10949	p-Isopropyltoluene	99-87-6	19	1	0.89
10949	Methyl Acetate	79-20-9	29	2	0.89
10949	Methyl Tertiary Butyl Ether	1634-04-4	21	0.5	0.89
10949	4-Methyl-2-pentanone	108-10-1	130	3	0.89
10949	Methylcyclohexane	108-87-2	21	1	0.89
10949	Methylene Chloride	75-09-2	19	2	0.89
10949	Naphthalene	91-20-3	17	1	0.89

Sample Description: S19-SS02-0002-121311MSD Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499058
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 14:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

192-2 SDG#: DHR09-04MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**	**ug/kg**	
10949	n-Propylbenzene	103-65-1	20	1	0.89
10949	Styrene	100-42-5	17	1	0.89
10949	1,1,1,2-Tetrachloroethane	630-20-6	19	1	0.89
10949	1,1,2,2-Tetrachloroethane	79-34-5	20	1	0.89
10949	Tetrachloroethene	127-18-4	21	1	0.89
10949	Toluene	108-88-3	20	1	0.89
10949	1,2,3-Trichlorobenzene	87-61-6	16	1	0.89
10949	1,2,4-Trichlorobenzene	120-82-1	15	1	0.89
10949	1,1,1-Trichloroethane	71-55-6	22	1	0.89
10949	1,1,2-Trichloroethane	79-00-5	20	1	0.89
10949	Trichloroethene	79-01-6	19	1	0.89
10949	Trichlorofluoromethane	75-69-4	25	2	0.89
10949	1,2,3-Trichloropropane	96-18-4	21	1	0.89
10949	1,2,4-Trimethylbenzene	95-63-6	20	1	0.89
10949	1,3,5-Trimethylbenzene	108-67-8	20	1	0.89
10949	Vinyl Chloride	75-01-4	19	1	0.89
10949	m+p-Xylene	179601-23-1	39	1	0.89
10949	o-Xylene	95-47-6	19	1	0.89
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**	**ug/kg**	
10727	Acenaphthene	83-32-9	1,600	4	1
10727	Acenaphthylene	208-96-8	1,700	4	1
10727	Anthracene	120-12-7	1,600	4	1
10727	Benzo(a)anthracene	56-55-3	1,500	4	1
10727	Benzo(a)pyrene	50-32-8	1,600	4	1
10727	Benzo(b)fluoranthene	205-99-2	1,600	4	1
10727	Benzo(g,h,i)perylene	191-24-2	1,600	4	1
10727	Benzo(k)fluoranthene	207-08-9	1,600	4	1
10727	Benzyl alcohol	100-51-6	1,600	200	1
10727	1,1'-Biphenyl	92-52-4	1,800	20	1
10727	4-Bromophenyl-phenylether	101-55-3	1,700	20	1
10727	Butylbenzylphthalate	85-68-7	1,700	81	1
10727	Di-n-butylphthalate	84-74-2	1,700	81	1
10727	Carbazole	86-74-8	1,600	20	1
10727	4-Chloro-3-methylphenol	59-50-7	1,600	20	1
10727	4-Chloroaniline	106-47-8	1,400	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	1,700	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	1,600	20	1
10727	2-Chloronaphthalene	91-58-7	1,900	9	1
10727	2-Chlorophenol	95-57-8	1,700	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	1,600	20	1
10727	Chrysene	218-01-9	1,600	4	1
10727	Dibenz(a,h)anthracene	53-70-3	1,600	4	1
10727	Dibenzofuran	132-64-9	1,600	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	1,400	120	1
10727	2,4-Dichlorophenol	120-83-2	1,700	20	1
10727	Diethylphthalate	84-66-2	1,600	81	1
10727	2,4-Dimethylphenol	105-67-9	1,600	20	1
10727	Dimethylphthalate	131-11-3	1,700	81	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	1,700	200	1
10727	2,4-Dinitrophenol	51-28-5	2,800	410	1

Sample Description: S19-SS02-0002-121311MSD Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499058
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 14:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

192-2 SDG#: DHR09-04MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**	**ug/kg**	
10727	2,4-Dinitrotoluene	121-14-2	1,600	81	1
10727	2,6-Dinitrotoluene	606-20-2	1,700	20	1
10727	1,4-Dioxane	123-91-1	780	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	1,800	81	1
10727	Fluoranthene	206-44-0	1,500	4	1
10727	Fluorene	86-73-7	1,600	4	1
10727	Hexachlorobenzene	118-74-1	1,600	4	1
10727	Hexachlorocyclopentadiene	77-47-4	3,100	200	1
10727	Hexachloroethane	67-72-1	1,500	41	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	1,600	4	1
10727	Isophorone	78-59-1	1,700	20	1
10727	2-Methylnaphthalene	91-57-6	1,600	4	1
10727	2-Methylphenol	95-48-7	1,700	20	1
10727	4-Methylphenol	106-44-5	1,700	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.				
10727	2-Nitroaniline	88-74-4	1,700	20	1
10727	3-Nitroaniline	99-09-2	1,600	81	1
10727	4-Nitroaniline	100-01-6	1,300	81	1
10727	Nitrobenzene	98-95-3	1,700	20	1
10727	2-Nitrophenol	88-75-5	1,600	20	1
10727	4-Nitrophenol	100-02-7	1,300	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	1,500	20	1
10727	N-Nitrosodiphenylamine	86-30-6	1,800	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.				
10727	Di-n-octylphthalate	117-84-0	1,800	81	1
10727	Pentachlorophenol	87-86-5	1,200	41	1
10727	Phenanthrene	85-01-8	1,600	4	1
10727	Phenol	108-95-2	1,700	20	1
10727	Pyrene	129-00-0	1,600	4	1
10727	2,4,5-Trichlorophenol	95-95-4	1,700	20	1
10727	2,4,6-Trichlorophenol	88-06-2	1,700	20	1
Metals	**SW-846 6010B**		**mg/kg**	**mg/kg**	
06946	Barium	7440-39-3	332	0.0218	1
06949	Cadmium	7440-43-9	6.68	0.0242	1
06951	Chromium	7440-47-3	45.7	0.169	1
06955	Lead	7439-92-1	32.3	0.266	1
06936	Selenium	7782-49-2	17.9	0.822	1
06966	Silver	7440-22-4	5.63	0.100	1
	SW-846 6020		**mg/kg**	**mg/kg**	
06125	Arsenic	7440-38-2	13.3	0.0939	2
	SW-846 7471A		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.202	0.0081	1

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Analysis Report

Sample Description: S19-SS02-0002-121311MSD Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499058
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 14:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

192-2 SDG#: DHR09-04MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00118	Moisture	n.a.	18.1	0.50	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113561AA	12/22/2011 14:56	Chelsea B Eastep	0.89
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134826436	12/14/2011 14:24	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134826436	12/14/2011 14:24	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134826436	12/14/2011 14:24	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11350SLB026	12/17/2011 04:33	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11350SLB026	12/16/2011 18:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	113505708001	12/19/2011 09:20	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113505708001	12/19/2011 09:20	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113505708001	12/19/2011 09:20	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113505708001	12/19/2011 09:20	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113505708001	12/19/2011 09:20	Eric L Eby	1
06966	Silver	SW-846 6010B	1	113505708001	12/19/2011 09:20	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113501026001A	12/28/2011 17:10	David K Beck	2
00159	Mercury	SW-846 7471A	1	113505711001	12/19/2011 07:22	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113505708001	12/18/2011 10:32	James L Mertz	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113501026001	12/18/2011 11:18	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113505711001	12/18/2011 13:20	James L Mertz	1
00118	Moisture	SM20 2540 G	1	11350820003A	12/16/2011 21:15	Scott W Freisher	1

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Analysis Report

Sample Description: S19-SS02-0002-121311DUP Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499059
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 14:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

192-2 SDG#: DHR09-04DUP

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
Metals		**SW-846 6010B**	**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	85.1		0.0220	1
06949	Cadmium	7440-43-9	0.980		0.0244	1
06951	Chromium	7440-47-3	17.8		0.171	1
06955	Lead	7439-92-1	14.3		0.269	1
06936	Selenium	7782-49-2	0.830	U	0.830	1
06966	Silver	7440-22-4	0.101	U	0.101	1
		SW-846 6020	**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	12.5		0.0948	2
		SW-846 7471A	**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0140	J	0.0080	1
Wet Chemistry		**SM20 2540 G**	**%**		**%**	
00118	Moisture	n.a.	18.1		0.50	1
00121	Moisture Duplicate	n.a.	18.6		0.50	1

The duplicate moisture value is provided to assess the precision of the moisture test. For comparability purposes, the initial moisture determination is the value used to perform dry weight calculations.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06946	Barium	SW-846 6010B	1	113505708001	12/19/2011 09:12	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113505708001	12/19/2011 09:12	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113505708001	12/19/2011 09:12	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113505708001	12/19/2011 09:12	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113505708001	12/20/2011 11:54	Joanne M Gates	1
06966	Silver	SW-846 6010B	1	113505708001	12/19/2011 09:12	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113501026001A	12/28/2011 17:05	David K Beck	2
00159	Mercury	SW-846 7471A	1	113505711001	12/19/2011 07:17	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113505708001	12/18/2011 10:32	James L Mertz	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113501026001	12/18/2011 11:18	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113505711001	12/18/2011 13:20	James L Mertz	1
00118	Moisture	SM20 2540 G	1	11350820003A	12/16/2011 21:15	Scott W Freisher	1
00121	Moisture Duplicate	SM20 2540 G	1	11350820003A	12/16/2011 21:15	Scott W Freisher	1

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Analysis Report

Sample Description: S19-SS02-0305-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499060
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 15:00 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

192-3 SDG#: DHR09-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	15	J	6	0.83
10949	Benzene	71-43-2	0.4	U	0.4	0.83
10949	Bromobenzene	108-86-1	0.9	U	0.9	0.83
10949	Bromochloromethane	74-97-5	0.9	U	0.9	0.83
10949	Bromodichloromethane	75-27-4	0.9	U	0.9	0.83
10949	Bromoform	75-25-2	0.9	U	0.9	0.83
10949	Bromomethane	74-83-9	2	U	2	0.83
10949	2-Butanone	78-93-3	4	U	4	0.83
10949	n-Butylbenzene	104-51-8	0.9	U	0.9	0.83
10949	sec-Butylbenzene	135-98-8	0.9	U	0.9	0.83
10949	tert-Butylbenzene	98-06-6	0.9	U	0.9	0.83
10949	Carbon Disulfide	75-15-0	0.9	U	0.9	0.83
10949	Carbon Tetrachloride	56-23-5	0.9	U	0.9	0.83
10949	Chlorobenzene	108-90-7	0.9	U	0.9	0.83
10949	Chloroethane	75-00-3	2	U	2	0.83
10949	Chloroform	67-66-3	0.9	U	0.9	0.83
10949	Chloromethane	74-87-3	2	U	2	0.83
10949	2-Chlorotoluene	95-49-8	0.9	U	0.9	0.83
10949	4-Chlorotoluene	106-43-4	0.9	U	0.9	0.83
10949	Cyclohexane	110-82-7	0.9	U	0.9	0.83
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.83
10949	Dibromochloromethane	124-48-1	0.9	U	0.9	0.83
10949	1,2-Dibromoethane	106-93-4	0.9	U	0.9	0.83
10949	Dibromomethane	74-95-3	0.9	U	0.9	0.83
10949	1,2-Dichlorobenzene	95-50-1	0.9	U	0.9	0.83
10949	1,3-Dichlorobenzene	541-73-1	0.9	U	0.9	0.83
10949	1,4-Dichlorobenzene	106-46-7	0.9	U	0.9	0.83
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.83
10949	1,1-Dichloroethane	75-34-3	0.9	U	0.9	0.83
10949	1,2-Dichloroethane	107-06-2	0.9	U	0.9	0.83
10949	1,1-Dichloroethene	75-35-4	0.9	U	0.9	0.83
10949	cis-1,2-Dichloroethene	156-59-2	0.9	U	0.9	0.83
10949	trans-1,2-Dichloroethene	156-60-5	0.9	U	0.9	0.83
10949	1,2-Dichloropropane	78-87-5	0.9	U	0.9	0.83
10949	1,3-Dichloropropane	142-28-9	0.9	U	0.9	0.83
10949	2,2-Dichloropropane	594-20-7	0.9	U	0.9	0.83
10949	1,1-Dichloropropene	563-58-6	0.9	U	0.9	0.83
10949	cis-1,3-Dichloropropene	10061-01-5	0.9	U	0.9	0.83
10949	trans-1,3-Dichloropropene	10061-02-6	0.9	U	0.9	0.83
10949	Ethylbenzene	100-41-4	0.9	J	0.9	0.83
10949	Freon 113	76-13-1	2	U	2	0.83
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.83
10949	2-Hexanone	591-78-6	3	U	3	0.83
10949	Isopropylbenzene	98-82-8	0.9	U	0.9	0.83
10949	p-Isopropyltoluene	99-87-6	0.9	U	0.9	0.83
10949	Methyl Acetate	79-20-9	2	U	2	0.83
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.4	U	0.4	0.83
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.83
10949	Methylcyclohexane	108-87-2	0.9	U	0.9	0.83
10949	Methylene Chloride	75-09-2	2	U	2	0.83
10949	Naphthalene	91-20-3	0.9	U	0.9	0.83

Sample Description: S19-SS02-0305-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499060
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 15:00 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

192-3 SDG#: DHR09-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	0.9	U	0.9	0.83
10949	Styrene	100-42-5	0.9	U	0.9	0.83
10949	1,1,1,2-Tetrachloroethane	630-20-6	0.9	U	0.9	0.83
10949	1,1,2,2-Tetrachloroethane	79-34-5	0.9	U	0.9	0.83
10949	Tetrachloroethene	127-18-4	0.9	U	0.9	0.83
10949	Toluene	108-88-3	0.9	U	0.9	0.83
10949	1,2,3-Trichlorobenzene	87-61-6	0.9	U	0.9	0.83
10949	1,2,4-Trichlorobenzene	120-82-1	0.9	U	0.9	0.83
10949	1,1,1-Trichloroethane	71-55-6	0.9	U	0.9	0.83
10949	1,1,2-Trichloroethane	79-00-5	0.9	U	0.9	0.83
10949	Trichloroethene	79-01-6	0.9	U	0.9	0.83
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.83
10949	1,2,3-Trichloropropane	96-18-4	0.9	U	0.9	0.83
10949	1,2,4-Trimethylbenzene	95-63-6	0.9	U	0.9	0.83
10949	1,3,5-Trimethylbenzene	108-67-8	0.9	U	0.9	0.83
10949	Vinyl Acetate	108-05-4	2	U	2	0.83
10949	Vinyl Chloride	75-01-4	0.9	U	0.9	0.83
10949	m+p-Xylene	179601-23-1	0.9	U	0.9	0.83
10949	o-Xylene	95-47-6	0.9	U	0.9	0.83
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	5	J	4	1
10727	Benzo(b)fluoranthene	205-99-2	6	J	4	1
10727	Benzo(g,h,i)perylene	191-24-2	7	J	4	1
10727	Benzo(k)fluoranthene	207-08-9	5	J	4	1
10727	Benzyl alcohol	100-51-6	180	U	180	1
10727	1,1'-Biphenyl	92-52-4	18	U	18	1
10727	4-Bromophenyl-phenylether	101-55-3	18	U	18	1
10727	Butylbenzylphthalate	85-68-7	71	U	71	1
10727	Di-n-butylphthalate	84-74-2	71	U	71	1
10727	Carbazole	86-74-8	18	U	18	1
10727	4-Chloro-3-methylphenol	59-50-7	18	U	18	1
10727	4-Chloroaniline	106-47-8	18	U	18	1
10727	bis(2-Chloroethoxy)methane	111-91-1	18	U	18	1
10727	bis(2-Chloroethyl)ether	111-44-4	18	U	18	1
10727	2-Chloronaphthalene	91-58-7	7	U	7	1
10727	2-Chlorophenol	95-57-8	18	U	18	1
10727	4-Chlorophenyl-phenylether	7005-72-3	18	U	18	1
10727	Chrysene	218-01-9	5	J	4	1
10727	Dibenz(a,h)anthracene	53-70-3	5	J	4	1
10727	Dibenzofuran	132-64-9	18	U	18	1
10727	3,3'-Dichlorobenzidine	91-94-1	110	U	110	1
10727	2,4-Dichlorophenol	120-83-2	18	U	18	1
10727	Diethylphthalate	84-66-2	71	U	71	1
10727	2,4-Dimethylphenol	105-67-9	18	U	18	1
10727	Dimethylphthalate	131-11-3	71	U	71	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	180	U	180	1

Sample Description: S19-SS02-0305-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499060
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 15:00 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

192-3 SDG#: DHR09-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	350	U	350	1
10727	2,4-Dinitrotoluene	121-14-2	71	U	71	1
10727	2,6-Dinitrotoluene	606-20-2	18	U	18	1
10727	1,4-Dioxane	123-91-1	110	U	110	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	73	J	71	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	180	U	180	1
10727	Hexachloroethane	67-72-1	35	U	35	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	7	J	4	1
10727	Isophorone	78-59-1	18	U	18	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	18	U	18	1
10727	4-Methylphenol	106-44-5	18	U	18	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	18	U	18	1
10727	3-Nitroaniline	99-09-2	71	U	71	1
10727	4-Nitroaniline	100-01-6	71	U	71	1
10727	Nitrobenzene	98-95-3	18	U	18	1
10727	2-Nitrophenol	88-75-5	18	U	18	1
10727	4-Nitrophenol	100-02-7	180	U	180	1
10727	N-Nitroso-di-n-propylamine	621-64-7	18	U	18	1
10727	N-Nitrosodiphenylamine	86-30-6	18	U	18	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	71	U	71	1
10727	Pentachlorophenol	87-86-5	35	U	35	1
10727	Phenanthrene	85-01-8	5	J	4	1
10727	Phenol	108-95-2	18	U	18	1
10727	Pyrene	129-00-0	4	J	4	1
10727	2,4,5-Trichlorophenol	95-95-4	18	U	18	1
10727	2,4,6-Trichlorophenol	88-06-2	18	U	18	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	52.1		0.0189	1
06949	Cadmium	7440-43-9	0.744		0.0210	1
06951	Chromium	7440-47-3	10.7		0.147	1
06955	Lead	7439-92-1	6.19		0.231	1
06936	Selenium	7782-49-2	0.715	U	0.715	1
06966	Silver	7440-22-4	0.0872	U	0.0872	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	5.78		0.0833	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0070	U	0.0070	1

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Analysis Report

Sample Description: S19-SS02-0305-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499060
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 15:00 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

192-3 SDG#: DHR09-05

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	5.8	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113561AA	12/22/2011 18:20	Chelsea B Eastep	0.83
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134826436	12/14/2011 14:28	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134826436	12/14/2011 14:28	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134826436	12/14/2011 14:27	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11350SLB026	12/17/2011 06:13	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11350SLB026	12/16/2011 18:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	113505708001	12/19/2011 09:49	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113505708001	12/19/2011 09:49	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113505708001	12/19/2011 09:49	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113505708001	12/19/2011 09:49	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113505708001	12/19/2011 09:49	Eric L Eby	1
06966	Silver	SW-846 6010B	1	113505708001	12/19/2011 09:49	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113501026001A	12/28/2011 17:29	David K Beck	2
00159	Mercury	SW-846 7471A	1	113505711001	12/19/2011 07:23	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113505708001	12/18/2011 10:32	James L Mertz	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113501026001	12/18/2011 11:18	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113505711001	12/18/2011 13:20	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11350820003A	12/16/2011 21:15	Scott W Freisher	1

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Analysis Report

Sample Description: S19-SS02-0810-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499061
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 15:05 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

192-8 SDG#: DHR09-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	25	J	9	1.22
10949	Benzene	71-43-2	0.6	U	0.6	1.22
10949	Bromobenzene	108-86-1	1	U	1	1.22
10949	Bromochloromethane	74-97-5	1	U	1	1.22
10949	Bromodichloromethane	75-27-4	1	U	1	1.22
10949	Bromoform	75-25-2	1	U	1	1.22
10949	Bromomethane	74-83-9	3	U	3	1.22
10949	2-Butanone	78-93-3	5	U	5	1.22
10949	n-Butylbenzene	104-51-8	1	U	1	1.22
10949	sec-Butylbenzene	135-98-8	1	U	1	1.22
10949	tert-Butylbenzene	98-06-6	1	U	1	1.22
10949	Carbon Disulfide	75-15-0	1	U	1	1.22
10949	Carbon Tetrachloride	56-23-5	1	U	1	1.22
10949	Chlorobenzene	108-90-7	1	U	1	1.22
10949	Chloroethane	75-00-3	3	U	3	1.22
10949	Chloroform	67-66-3	1	U	1	1.22
10949	Chloromethane	74-87-3	3	U	3	1.22
10949	2-Chlorotoluene	95-49-8	1	U	1	1.22
10949	4-Chlorotoluene	106-43-4	1	U	1	1.22
10949	Cyclohexane	110-82-7	1	U	1	1.22
10949	1,2-Dibromo-3-chloropropane	96-12-8	3	U	3	1.22
10949	Dibromochloromethane	124-48-1	1	U	1	1.22
10949	1,2-Dibromoethane	106-93-4	1	U	1	1.22
10949	Dibromomethane	74-95-3	1	U	1	1.22
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	1.22
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	1.22
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	1.22
10949	Dichlorodifluoromethane	75-71-8	3	U	3	1.22
10949	1,1-Dichloroethane	75-34-3	1	U	1	1.22
10949	1,2-Dichloroethane	107-06-2	1	U	1	1.22
10949	1,1-Dichloroethene	75-35-4	1	U	1	1.22
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	1.22
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	1.22
10949	1,2-Dichloropropane	78-87-5	1	U	1	1.22
10949	1,3-Dichloropropane	142-28-9	1	U	1	1.22
10949	2,2-Dichloropropane	594-20-7	1	U	1	1.22
10949	1,1-Dichloropropene	563-58-6	1	U	1	1.22
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	1.22
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	1.22
10949	Ethylbenzene	100-41-4	1	U	1	1.22
10949	Freon 113	76-13-1	3	U	3	1.22
10949	Hexachlorobutadiene	87-68-3	3	U	3	1.22
10949	2-Hexanone	591-78-6	4	U	4	1.22
10949	Isopropylbenzene	98-82-8	1	U	1	1.22
10949	p-Isopropyltoluene	99-87-6	1	U	1	1.22
10949	Methyl Acetate	79-20-9	3	U	3	1.22
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.6	U	0.6	1.22
10949	4-Methyl-2-pentanone	108-10-1	4	U	4	1.22
10949	Methylcyclohexane	108-87-2	5	J	1	1.22
10949	Methylene Chloride	75-09-2	3	U	3	1.22
10949	Naphthalene	91-20-3	1	U	1	1.22

Sample Description: S19-SS02-0810-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499061
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 15:05 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

192-8 SDG#: DHR09-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	1.22
10949	Styrene	100-42-5	1	U	1	1.22
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	1.22
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	1.22
10949	Tetrachloroethene	127-18-4	1	U	1	1.22
10949	Toluene	108-88-3	1	U	1	1.22
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	1.22
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	1.22
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	1.22
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	1.22
10949	Trichloroethene	79-01-6	1	U	1	1.22
10949	Trichlorofluoromethane	75-69-4	3	U	3	1.22
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	1.22
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	1.22
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	1.22
10949	Vinyl Acetate	108-05-4	3	U	3	1.22
10949	Vinyl Chloride	75-01-4	1	U	1	1.22
10949	m+p-Xylene	179601-23-1	1	U	1	1.22
10949	o-Xylene	95-47-6	1	U	1	1.22
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	3	U	3	1
10727	Acenaphthylene	208-96-8	3	U	3	1
10727	Anthracene	120-12-7	3	U	3	1
10727	Benzo(a)anthracene	56-55-3	3	U	3	1
10727	Benzo(a)pyrene	50-32-8	3	U	3	1
10727	Benzo(b)fluoranthene	205-99-2	3	U	3	1
10727	Benzo(g,h,i)perylene	191-24-2	4	J	3	1
10727	Benzo(k)fluoranthene	207-08-9	3	U	3	1
10727	Benzyl alcohol	100-51-6	170	U	170	1
10727	1,1'-Biphenyl	92-52-4	17	U	17	1
10727	4-Bromophenyl-phenylether	101-55-3	17	U	17	1
10727	Butylbenzylphthalate	85-68-7	70	U	70	1
10727	Di-n-butylphthalate	84-74-2	70	U	70	1
10727	Carbazole	86-74-8	17	U	17	1
10727	4-Chloro-3-methylphenol	59-50-7	17	U	17	1
10727	4-Chloroaniline	106-47-8	17	U	17	1
10727	bis(2-Chloroethoxy)methane	111-91-1	17	U	17	1
10727	bis(2-Chloroethyl)ether	111-44-4	17	U	17	1
10727	2-Chloronaphthalene	91-58-7	7	U	7	1
10727	2-Chlorophenol	95-57-8	17	U	17	1
10727	4-Chlorophenyl-phenylether	7005-72-3	17	U	17	1
10727	Chrysene	218-01-9	4	J	3	1
10727	Dibenz(a,h)anthracene	53-70-3	5	J	3	1
10727	Dibenzofuran	132-64-9	17	U	17	1
10727	3,3'-Dichlorobenzidine	91-94-1	100	U	100	1
10727	2,4-Dichlorophenol	120-83-2	17	U	17	1
10727	Diethylphthalate	84-66-2	70	U	70	1
10727	2,4-Dimethylphenol	105-67-9	17	U	17	1
10727	Dimethylphthalate	131-11-3	70	U	70	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	170	U	170	1

Sample Description: S19-SS02-0810-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499061
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 15:05 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

192-8 SDG#: DHR09-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	350	U	350	1
10727	2,4-Dinitrotoluene	121-14-2	70	U	70	1
10727	2,6-Dinitrotoluene	606-20-2	17	U	17	1
10727	1,4-Dioxane	123-91-1	100	U	100	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	70	U	70	1
10727	Fluoranthene	206-44-0	3	U	3	1
10727	Fluorene	86-73-7	3	U	3	1
10727	Hexachlorobenzene	118-74-1	3	U	3	1
10727	Hexachlorocyclopentadiene	77-47-4	170	U	170	1
10727	Hexachloroethane	67-72-1	35	U	35	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	J	3	1
10727	Isophorone	78-59-1	17	U	17	1
10727	2-Methylnaphthalene	91-57-6	3	U	3	1
10727	2-Methylphenol	95-48-7	17	U	17	1
10727	4-Methylphenol	106-44-5	17	U	17	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	17	U	17	1
10727	3-Nitroaniline	99-09-2	70	U	70	1
10727	4-Nitroaniline	100-01-6	70	U	70	1
10727	Nitrobenzene	98-95-3	17	U	17	1
10727	2-Nitrophenol	88-75-5	17	U	17	1
10727	4-Nitrophenol	100-02-7	170	U	170	1
10727	N-Nitroso-di-n-propylamine	621-64-7	17	U	17	1
10727	N-Nitrosodiphenylamine	86-30-6	17	U	17	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	70	U	70	1
10727	Pentachlorophenol	87-86-5	35	U	35	1
10727	Phenanthrene	85-01-8	13	J	3	1
10727	Phenol	108-95-2	17	U	17	1
10727	Pyrene	129-00-0	3	U	3	1
10727	2,4,5-Trichlorophenol	95-95-4	17	U	17	1
10727	2,4,6-Trichlorophenol	88-06-2	17	U	17	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	49.8		0.0183	1
06949	Cadmium	7440-43-9	0.509		0.0204	1
06951	Chromium	7440-47-3	4.75		0.142	1
06955	Lead	7439-92-1	3.77		0.224	1
06936	Selenium	7782-49-2	0.692	U	0.692	1
06966	Silver	7440-22-4	0.0845	U	0.0845	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	4.48		0.0839	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0071	U	0.0071	1

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Analysis Report

Sample Description: S19-SS02-0810-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499061
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 15:05 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

192-8 SDG#: DHR09-06

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	4.6	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113561AA	12/22/2011 18:43	Chelsea B Eastep	1.22
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134826436	12/14/2011 14:30	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134826436	12/14/2011 14:30	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134826436	12/14/2011 14:29	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11350SLB026	12/17/2011 06:39	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11350SLB026	12/16/2011 18:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	113505708001	12/19/2011 09:52	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113505708001	12/19/2011 09:52	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113505708001	12/19/2011 09:52	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113505708001	12/19/2011 09:52	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113505708001	12/19/2011 09:52	Eric L Eby	1
06966	Silver	SW-846 6010B	1	113505708001	12/19/2011 09:52	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113501026001A	12/28/2011 17:31	David K Beck	2
00159	Mercury	SW-846 7471A	1	113505711001	12/19/2011 07:24	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113505708001	12/18/2011 10:32	James L Mertz	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113501026001	12/18/2011 11:18	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113505711001	12/18/2011 13:20	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11350820003A	12/16/2011 21:15	Scott W Freisher	1

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Analysis Report

Sample Description: S19-SS02-1618-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499062
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 15:15 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

19216 SDG#: DHR09-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	22		8	1.02
10949	Benzene	71-43-2	0.5	U	0.5	1.02
10949	Bromobenzene	108-86-1	1	U	1	1.02
10949	Bromochloromethane	74-97-5	1	U	1	1.02
10949	Bromodichloromethane	75-27-4	1	U	1	1.02
10949	Bromoform	75-25-2	1	U	1	1.02
10949	Bromomethane	74-83-9	2	U	2	1.02
10949	2-Butanone	78-93-3	4	U	4	1.02
10949	n-Butylbenzene	104-51-8	1	U	1	1.02
10949	sec-Butylbenzene	135-98-8	1	U	1	1.02
10949	tert-Butylbenzene	98-06-6	1	U	1	1.02
10949	Carbon Disulfide	75-15-0	1	J	1	1.02
10949	Carbon Tetrachloride	56-23-5	1	U	1	1.02
10949	Chlorobenzene	108-90-7	1	U	1	1.02
10949	Chloroethane	75-00-3	2	U	2	1.02
10949	Chloroform	67-66-3	1	U	1	1.02
10949	Chloromethane	74-87-3	2	U	2	1.02
10949	2-Chlorotoluene	95-49-8	1	U	1	1.02
10949	4-Chlorotoluene	106-43-4	1	U	1	1.02
10949	Cyclohexane	110-82-7	1	U	1	1.02
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	1.02
10949	Dibromochloromethane	124-48-1	1	U	1	1.02
10949	1,2-Dibromoethane	106-93-4	1	U	1	1.02
10949	Dibromomethane	74-95-3	1	U	1	1.02
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	1.02
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	1.02
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	1.02
10949	Dichlorodifluoromethane	75-71-8	2	U	2	1.02
10949	1,1-Dichloroethane	75-34-3	1	U	1	1.02
10949	1,2-Dichloroethane	107-06-2	1	U	1	1.02
10949	1,1-Dichloroethene	75-35-4	1	U	1	1.02
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	1.02
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	1.02
10949	1,2-Dichloropropane	78-87-5	1	U	1	1.02
10949	1,3-Dichloropropane	142-28-9	1	U	1	1.02
10949	2,2-Dichloropropane	594-20-7	1	U	1	1.02
10949	1,1-Dichloropropene	563-58-6	1	U	1	1.02
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	1.02
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	1.02
10949	Ethylbenzene	100-41-4	1	U	1	1.02
10949	Freon 113	76-13-1	2	U	2	1.02
10949	Hexachlorobutadiene	87-68-3	2	U	2	1.02
10949	2-Hexanone	591-78-6	3	U	3	1.02
10949	Isopropylbenzene	98-82-8	1	U	1	1.02
10949	p-Isopropyltoluene	99-87-6	1	U	1	1.02
10949	Methyl Acetate	79-20-9	2	U	2	1.02
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	1.02
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	1.02
10949	Methylcyclohexane	108-87-2	1	U	1	1.02
10949	Methylene Chloride	75-09-2	2	U	2	1.02
10949	Naphthalene	91-20-3	1	U	1	1.02

Sample Description: S19-SS02-1618-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499062
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 15:15 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

19216 SDG#: DHR09-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	1.02
10949	Styrene	100-42-5	1	U	1	1.02
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	1.02
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	1.02
10949	Tetrachloroethene	127-18-4	1	U	1	1.02
10949	Toluene	108-88-3	1	U	1	1.02
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	1.02
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	1.02
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	1.02
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	1.02
10949	Trichloroethene	79-01-6	1	U	1	1.02
10949	Trichlorofluoromethane	75-69-4	2	U	2	1.02
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	1.02
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	1.02
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	1.02
10949	Vinyl Acetate	108-05-4	2	U	2	1.02
10949	Vinyl Chloride	75-01-4	1	U	1	1.02
10949	m+p-Xylene	179601-23-1	1	U	1	1.02
10949	o-Xylene	95-47-6	1	U	1	1.02

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 2,2-dichloropropane.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	J	4	1
10727	Benzo(g,h,i)perylene	191-24-2	6	J	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	180	U	180	1
10727	1,1'-Biphenyl	92-52-4	18	U	18	1
10727	4-Bromophenyl-phenylether	101-55-3	18	U	18	1
10727	Butylbenzylphthalate	85-68-7	70	U	70	1
10727	Di-n-butylphthalate	84-74-2	70	U	70	1
10727	Carbazole	86-74-8	18	U	18	1
10727	4-Chloro-3-methylphenol	59-50-7	18	U	18	1
10727	4-Chloroaniline	106-47-8	18	U	18	1
10727	bis(2-Chloroethoxy)methane	111-91-1	18	U	18	1
10727	bis(2-Chloroethyl)ether	111-44-4	18	U	18	1
10727	2-Chloronaphthalene	91-58-7	7	U	7	1
10727	2-Chlorophenol	95-57-8	18	U	18	1
10727	4-Chlorophenyl-phenylether	7005-72-3	18	U	18	1
10727	Chrysene	218-01-9	5	J	4	1
10727	Dibenz(a,h)anthracene	53-70-3	5	J	4	1
10727	Dibenzofuran	132-64-9	18	U	18	1
10727	3,3'-Dichlorobenzidine	91-94-1	110	U	110	1
10727	2,4-Dichlorophenol	120-83-2	18	U	18	1

Sample Description: S19-SS02-1618-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499062
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 15:15 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

19216 SDG#: DHR09-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Diethylphthalate	84-66-2	70	U	70	1
10727	2,4-Dimethylphenol	105-67-9	18	U	18	1
10727	Dimethylphthalate	131-11-3	70	U	70	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	180	U	180	1
10727	2,4-Dinitrophenol	51-28-5	350	U	350	1
10727	2,4-Dinitrotoluene	121-14-2	70	U	70	1
10727	2,6-Dinitrotoluene	606-20-2	18	U	18	1
10727	1,4-Dioxane	123-91-1	110	U	110	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	70	U	70	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	180	U	180	1
10727	Hexachloroethane	67-72-1	35	U	35	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	5	J	4	1
10727	Isophorone	78-59-1	18	U	18	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	18	U	18	1
10727	4-Methylphenol	106-44-5	18	U	18	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	18	U	18	1
10727	3-Nitroaniline	99-09-2	70	U	70	1
10727	4-Nitroaniline	100-01-6	70	U	70	1
10727	Nitrobenzene	98-95-3	18	U	18	1
10727	2-Nitrophenol	88-75-5	18	U	18	1
10727	4-Nitrophenol	100-02-7	180	U	180	1
10727	N-Nitroso-di-n-propylamine	621-64-7	18	U	18	1
10727	N-Nitrosodiphenylamine	86-30-6	18	U	18	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	70	U	70	1
10727	Pentachlorophenol	87-86-5	35	U	35	1
10727	Phenanthrene	85-01-8	6	J	4	1
10727	Phenol	108-95-2	18	U	18	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	18	U	18	1
10727	2,4,6-Trichlorophenol	88-06-2	18	U	18	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	36.8		0.0186	1
06949	Cadmium	7440-43-9	0.365	J	0.0206	1
06951	Chromium	7440-47-3	5.03		0.144	1
06955	Lead	7439-92-1	3.87		0.227	1
06936	Selenium	7782-49-2	0.702	U	0.702	1
06966	Silver	7440-22-4	0.0857	U	0.0857	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	5.97		0.0842	2

Sample Description: S19-SS02-1618-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499062
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 15:15 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

19216 SDG#: DHR09-07

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0072 U	0.0072	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	5.0	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113562AA	12/23/2011 01:45	Andrea E Lando	1.02
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134826436	12/14/2011 14:32	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134826436	12/14/2011 14:32	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134826436	12/14/2011 14:31	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11350SLB026	12/17/2011 07:04	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11350SLB026	12/16/2011 18:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	113505708001	12/19/2011 09:56	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113505708001	12/19/2011 09:56	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113505708001	12/19/2011 09:56	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113505708001	12/19/2011 09:56	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113505708001	12/19/2011 09:56	Eric L Eby	1
06966	Silver	SW-846 6010B	1	113505708001	12/19/2011 09:56	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113501026001A	12/28/2011 17:34	David K Beck	2
00159	Mercury	SW-846 7471A	1	113505711001	12/19/2011 07:25	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113505708001	12/18/2011 10:32	James L Mertz	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113501026001	12/18/2011 11:18	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113505711001	12/18/2011 13:20	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11350820003A	12/16/2011 21:15	Scott W Freisher	1

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Analysis Report

Sample Description: S17-SS01-0002-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499063
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 15:45 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

171-2 SDG#: DHR09-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	42		7	0.85
10949	Benzene	71-43-2	0.5	U	0.5	0.85
10949	Bromobenzene	108-86-1	1	U	1	0.85
10949	Bromochloromethane	74-97-5	1	U	1	0.85
10949	Bromodichloromethane	75-27-4	1	U	1	0.85
10949	Bromoform	75-25-2	1	U	1	0.85
10949	Bromomethane	74-83-9	2	U	2	0.85
10949	2-Butanone	78-93-3	5	J	4	0.85
10949	n-Butylbenzene	104-51-8	1	U	1	0.85
10949	sec-Butylbenzene	135-98-8	1	U	1	0.85
10949	tert-Butylbenzene	98-06-6	1	U	1	0.85
10949	Carbon Disulfide	75-15-0	1	U	1	0.85
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.85
10949	Chlorobenzene	108-90-7	1	U	1	0.85
10949	Chloroethane	75-00-3	2	U	2	0.85
10949	Chloroform	67-66-3	1	U	1	0.85
10949	Chloromethane	74-87-3	2	U	2	0.85
10949	2-Chlorotoluene	95-49-8	1	U	1	0.85
10949	4-Chlorotoluene	106-43-4	1	U	1	0.85
10949	Cyclohexane	110-82-7	1	U	1	0.85
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.85
10949	Dibromochloromethane	124-48-1	1	U	1	0.85
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.85
10949	Dibromomethane	74-95-3	1	U	1	0.85
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.85
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.85
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.85
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.85
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.85
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.85
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.85
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.85
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.85
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.85
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.85
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.85
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.85
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.85
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.85
10949	Ethylbenzene	100-41-4	1	U	1	0.85
10949	Freon 113	76-13-1	2	U	2	0.85
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.85
10949	2-Hexanone	591-78-6	3	U	3	0.85
10949	Isopropylbenzene	98-82-8	1	U	1	0.85
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.85
10949	Methyl Acetate	79-20-9	2	U	2	0.85
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.85
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.85
10949	Methylcyclohexane	108-87-2	1	U	1	0.85
10949	Methylene Chloride	75-09-2	2	U	2	0.85
10949	Naphthalene	91-20-3	1	U	1	0.85

Sample Description: S17-SS01-0002-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499063
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 15:45 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

171-2 SDG#: DHR09-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.85
10949	Styrene	100-42-5	1	U	1	0.85
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.85
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.85
10949	Tetrachloroethene	127-18-4	1	U	1	0.85
10949	Toluene	108-88-3	1	U	1	0.85
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.85
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.85
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.85
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.85
10949	Trichloroethene	79-01-6	1	U	1	0.85
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.85
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.85
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.85
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.85
10949	Vinyl Acetate	108-05-4	2	U	2	0.85
10949	Vinyl Chloride	75-01-4	1	U	1	0.85
10949	m+p-Xylene	179601-23-1	1	U	1	0.85
10949	o-Xylene	95-47-6	1	U	1	0.85

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 2,2-dichloropropane.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	5	J	4	1
10727	Benzo(b)fluoranthene	205-99-2	5	J	4	1
10727	Benzo(g,h,i)perylene	191-24-2	6	J	4	1
10727	Benzo(k)fluoranthene	207-08-9	5	J	4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	20	U	20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	81	U	81	1
10727	Di-n-butylphthalate	84-74-2	81	U	81	1
10727	Carbazole	86-74-8	20	U	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	5	J	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	J	4	1
10727	Dibenzofuran	132-64-9	20	U	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1

Sample Description: S17-SS01-0002-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499063
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 15:45 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

171-2 SDG#: DHR09-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Diethylphthalate	84-66-2	81	U	81	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	81	U	81	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1
10727	2,4-Dinitrophenol	51-28-5	410	U	410	1
10727	2,4-Dinitrotoluene	121-14-2	81	U	81	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	81	U	81	1
10727	Fluoranthene	206-44-0	6	J	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	41	U	41	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	6	J	4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	81	U	81	1
10727	4-Nitroaniline	100-01-6	81	U	81	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	81	U	81	1
10727	Pentachlorophenol	87-86-5	41	U	41	1
10727	Phenanthrene	85-01-8	4	J	4	1
10727	Phenol	108-95-2	20	U	20	1
10727	Pyrene	129-00-0	7	J	4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	94.0		0.0218	1
06949	Cadmium	7440-43-9	0.925		0.0242	1
06951	Chromium	7440-47-3	19.3		0.169	1
06955	Lead	7439-92-1	16.0		0.266	1
06936	Selenium	7782-49-2	0.822	U	0.822	1
06966	Silver	7440-22-4	0.100	U	0.100	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	13.5		0.0958	2

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Analysis Report

Sample Description: S17-SS01-0002-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499063
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 15:45 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

171-2 SDG#: DHR09-08

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0081 U	0.0081	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	18.1	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113562AA	12/23/2011 02:08	Andrea E Lando	0.85
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134826436	12/14/2011 14:33	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134826436	12/14/2011 14:34	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134826436	12/14/2011 14:33	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11350SLB026	12/17/2011 07:29	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11350SLB026	12/16/2011 18:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	113505708001	12/19/2011 10:00	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113505708001	12/19/2011 10:00	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113505708001	12/19/2011 10:00	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113505708001	12/19/2011 10:00	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113505708001	12/19/2011 10:00	Eric L Eby	1
06966	Silver	SW-846 6010B	1	113505708001	12/19/2011 10:00	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113501026001A	12/28/2011 17:36	David K Beck	2
00159	Mercury	SW-846 7471A	1	113505711001	12/19/2011 07:27	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113505708001	12/18/2011 10:32	James L Mertz	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113501026001	12/18/2011 11:18	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113505711001	12/18/2011 13:20	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11350820003A	12/16/2011 21:15	Scott W Freisher	1

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Analysis Report

Sample Description: HGR-121311-FD02 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499064
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HGRD2 SDG#: DHR09-09FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	10	J	8	0.87
10949	Benzene	71-43-2	0.6	U	0.6	0.87
10949	Bromobenzene	108-86-1	1	U	1	0.87
10949	Bromochloromethane	74-97-5	1	U	1	0.87
10949	Bromodichloromethane	75-27-4	1	U	1	0.87
10949	Bromoform	75-25-2	1	U	1	0.87
10949	Bromomethane	74-83-9	2	U	2	0.87
10949	2-Butanone	78-93-3	4	U	4	0.87
10949	n-Butylbenzene	104-51-8	1	U	1	0.87
10949	sec-Butylbenzene	135-98-8	1	U	1	0.87
10949	tert-Butylbenzene	98-06-6	1	U	1	0.87
10949	Carbon Disulfide	75-15-0	1	U	1	0.87
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.87
10949	Chlorobenzene	108-90-7	1	U	1	0.87
10949	Chloroethane	75-00-3	2	U	2	0.87
10949	Chloroform	67-66-3	1	U	1	0.87
10949	Chloromethane	74-87-3	2	U	2	0.87
10949	2-Chlorotoluene	95-49-8	1	U	1	0.87
10949	4-Chlorotoluene	106-43-4	1	U	1	0.87
10949	Cyclohexane	110-82-7	1	U	1	0.87
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.87
10949	Dibromochloromethane	124-48-1	1	U	1	0.87
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.87
10949	Dibromomethane	74-95-3	1	U	1	0.87
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.87
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.87
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.87
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.87
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.87
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.87
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.87
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.87
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.87
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.87
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.87
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.87
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.87
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.87
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.87
10949	Ethylbenzene	100-41-4	1	U	1	0.87
10949	Freon 113	76-13-1	2	U	2	0.87
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.87
10949	2-Hexanone	591-78-6	3	U	3	0.87
10949	Isopropylbenzene	98-82-8	1	U	1	0.87
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.87
10949	Methyl Acetate	79-20-9	2	U	2	0.87
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.6	U	0.6	0.87
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.87
10949	Methylcyclohexane	108-87-2	1	U	1	0.87
10949	Methylene Chloride	75-09-2	2	U	2	0.87
10949	Naphthalene	91-20-3	1	U	1	0.87

Sample Description: HGR-121311-FD02 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499064
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HGRD2 SDG#: DHR09-09FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.87
10949	Styrene	100-42-5	1	U	1	0.87
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.87
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.87
10949	Tetrachloroethene	127-18-4	1	U	1	0.87
10949	Toluene	108-88-3	1	U	1	0.87
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.87
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.87
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.87
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.87
10949	Trichloroethene	79-01-6	1	U	1	0.87
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.87
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.87
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.87
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.87
10949	Vinyl Acetate	108-05-4	2	U	2	0.87
10949	Vinyl Chloride	75-01-4	1	U	1	0.87
10949	m+p-Xylene	179601-23-1	1	U	1	0.87
10949	o-Xylene	95-47-6	1	U	1	0.87

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 2,2-dichloropropane.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	210	U	210	1
10727	1,1'-Biphenyl	92-52-4	21	U	21	1
10727	4-Bromophenyl-phenylether	101-55-3	21	U	21	1
10727	Butylbenzylphthalate	85-68-7	84	U	84	1
10727	Di-n-butylphthalate	84-74-2	84	U	84	1
10727	Carbazole	86-74-8	21	U	21	1
10727	4-Chloro-3-methylphenol	59-50-7	21	U	21	1
10727	4-Chloroaniline	106-47-8	21	U	21	1
10727	bis(2-Chloroethoxy)methane	111-91-1	21	U	21	1
10727	bis(2-Chloroethyl)ether	111-44-4	21	U	21	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	21	U	21	1
10727	4-Chlorophenyl-phenylether	7005-72-3	21	U	21	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	21	U	21	1
10727	3,3'-Dichlorobenzidine	91-94-1	130	U	130	1
10727	2,4-Dichlorophenol	120-83-2	21	U	21	1

Sample Description: HGR-121311-FD02 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499064
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HGRD2 SDG#: DHR09-09FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Diethylphthalate	84-66-2	84	U	84	1
10727	2,4-Dimethylphenol	105-67-9	21	U	21	1
10727	Dimethylphthalate	131-11-3	84	U	84	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	210	U	210	1
10727	2,4-Dinitrophenol	51-28-5	420	U	420	1
10727	2,4-Dinitrotoluene	121-14-2	84	U	84	1
10727	2,6-Dinitrotoluene	606-20-2	21	U	21	1
10727	1,4-Dioxane	123-91-1	130	U	130	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	84	U	84	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	210	U	210	1
10727	Hexachloroethane	67-72-1	42	U	42	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	21	U	21	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	21	U	21	1
10727	4-Methylphenol	106-44-5	21	U	21	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	21	U	21	1
10727	3-Nitroaniline	99-09-2	84	U	84	1
10727	4-Nitroaniline	100-01-6	84	U	84	1
10727	Nitrobenzene	98-95-3	21	U	21	1
10727	2-Nitrophenol	88-75-5	21	U	21	1
10727	4-Nitrophenol	100-02-7	210	U	210	1
10727	N-Nitroso-di-n-propylamine	621-64-7	21	U	21	1
10727	N-Nitrosodiphenylamine	86-30-6	21	U	21	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	84	U	84	1
10727	Pentachlorophenol	87-86-5	42	U	42	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	21	U	21	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	21	U	21	1
10727	2,4,6-Trichlorophenol	88-06-2	21	U	21	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	111		0.0227	1
06949	Cadmium	7440-43-9	0.807		0.0253	1
06951	Chromium	7440-47-3	14.6		0.177	1
06955	Lead	7439-92-1	12.7		0.278	1
06936	Selenium	7782-49-2	0.859	U	0.859	1
06966	Silver	7440-22-4	0.105	U	0.105	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	11.2		0.0981	2

Sample Description: HGR-121311-FD02 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499064
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HGRD2 SDG#: DHR09-09FD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0172 J	0.0082	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	20.8	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113562AA	12/23/2011 02:31	Andrea E Lando	0.87
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134826436	12/14/2011 14:35	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134826436	12/14/2011 14:36	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134826436	12/14/2011 14:35	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11350SLB026	12/17/2011 07:54	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11350SLB026	12/16/2011 18:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	113505708001	12/19/2011 10:03	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113505708001	12/19/2011 10:03	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113505708001	12/19/2011 10:03	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113505708001	12/19/2011 10:03	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113505708001	12/20/2011 12:03	Joanne M Gates	1
06966	Silver	SW-846 6010B	1	113505708001	12/19/2011 10:03	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113501026001A	12/28/2011 17:39	David K Beck	2
00159	Mercury	SW-846 7471A	1	113505711001	12/19/2011 07:28	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113505708001	12/18/2011 10:32	James L Mertz	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113501026001	12/18/2011 11:18	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113505711001	12/18/2011 13:20	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11350820003A	12/16/2011 21:15	Scott W Freisher	1

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Analysis Report

Sample Description: S17-SS01-0305-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499065
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 15:50 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

171-3 SDG#: DHR09-10

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg		ug/kg	
10949	Acetone	67-64-1	9	J	9	0.95
10949	Benzene	71-43-2	0.6	U	0.6	0.95
10949	Bromobenzene	108-86-1	1	U	1	0.95
10949	Bromochloromethane	74-97-5	1	U	1	0.95
10949	Bromodichloromethane	75-27-4	1	U	1	0.95
10949	Bromoform	75-25-2	1	U	1	0.95
10949	Bromomethane	74-83-9	2	U	2	0.95
10949	2-Butanone	78-93-3	5	U	5	0.95
10949	n-Butylbenzene	104-51-8	1	U	1	0.95
10949	sec-Butylbenzene	135-98-8	1	U	1	0.95
10949	tert-Butylbenzene	98-06-6	1	U	1	0.95
10949	Carbon Disulfide	75-15-0	1	U	1	0.95
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.95
10949	Chlorobenzene	108-90-7	1	U	1	0.95
10949	Chloroethane	75-00-3	2	U	2	0.95
10949	Chloroform	67-66-3	1	U	1	0.95
10949	Chloromethane	74-87-3	2	U	2	0.95
10949	2-Chlorotoluene	95-49-8	1	U	1	0.95
10949	4-Chlorotoluene	106-43-4	1	U	1	0.95
10949	Cyclohexane	110-82-7	1	U	1	0.95
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.95
10949	Dibromochloromethane	124-48-1	1	U	1	0.95
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.95
10949	Dibromomethane	74-95-3	1	U	1	0.95
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.95
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.95
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.95
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.95
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.95
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.95
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.95
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.95
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.95
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.95
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.95
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.95
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.95
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.95
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.95
10949	Ethylbenzene	100-41-4	1	U	1	0.95
10949	Freon 113	76-13-1	2	U	2	0.95
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.95
10949	2-Hexanone	591-78-6	4	U	4	0.95
10949	Isopropylbenzene	98-82-8	1	U	1	0.95
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.95
10949	Methyl Acetate	79-20-9	2	U	2	0.95
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.6	U	0.6	0.95
10949	4-Methyl-2-pentanone	108-10-1	4	U	4	0.95
10949	Methylcyclohexane	108-87-2	1	U	1	0.95
10949	Methylene Chloride	75-09-2	2	U	2	0.95
10949	Naphthalene	91-20-3	1	U	1	0.95

Sample Description: S17-SS01-0305-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499065
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 15:50 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

171-3 SDG#: DHR09-10

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.95
10949	Styrene	100-42-5	1	U	1	0.95
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.95
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.95
10949	Tetrachloroethene	127-18-4	1	U	1	0.95
10949	Toluene	108-88-3	1	U	1	0.95
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.95
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.95
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.95
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.95
10949	Trichloroethene	79-01-6	1	U	1	0.95
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.95
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.95
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.95
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.95
10949	Vinyl Acetate	108-05-4	2	U	2	0.95
10949	Vinyl Chloride	75-01-4	1	U	1	0.95
10949	m+p-Xylene	179601-23-1	1	U	1	0.95
10949	o-Xylene	95-47-6	1	U	1	0.95

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 2,2-dichloropropane.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	210	U	210	1
10727	1,1'-Biphenyl	92-52-4	21	U	21	1
10727	4-Bromophenyl-phenylether	101-55-3	21	U	21	1
10727	Butylbenzylphthalate	85-68-7	85	U	85	1
10727	Di-n-butylphthalate	84-74-2	85	U	85	1
10727	Carbazole	86-74-8	21	U	21	1
10727	4-Chloro-3-methylphenol	59-50-7	21	U	21	1
10727	4-Chloroaniline	106-47-8	21	U	21	1
10727	bis(2-Chloroethoxy)methane	111-91-1	21	U	21	1
10727	bis(2-Chloroethyl)ether	111-44-4	21	U	21	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	21	U	21	1
10727	4-Chlorophenyl-phenylether	7005-72-3	21	U	21	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	21	U	21	1
10727	3,3'-Dichlorobenzidine	91-94-1	130	U	130	1
10727	2,4-Dichlorophenol	120-83-2	21	U	21	1

Sample Description: S17-SS01-0305-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499065
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 15:50 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

171-3 SDG#: DHR09-10

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Diethylphthalate	84-66-2	85	U	85	1
10727	2,4-Dimethylphenol	105-67-9	21	U	21	1
10727	Dimethylphthalate	131-11-3	85	U	85	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	210	U	210	1
10727	2,4-Dinitrophenol	51-28-5	430	U	430	1
10727	2,4-Dinitrotoluene	121-14-2	85	U	85	1
10727	2,6-Dinitrotoluene	606-20-2	21	U	21	1
10727	1,4-Dioxane	123-91-1	130	U	130	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	85	U	85	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	210	U	210	1
10727	Hexachloroethane	67-72-1	43	U	43	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	21	U	21	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	21	U	21	1
10727	4-Methylphenol	106-44-5	21	U	21	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	21	U	21	1
10727	3-Nitroaniline	99-09-2	85	U	85	1
10727	4-Nitroaniline	100-01-6	85	U	85	1
10727	Nitrobenzene	98-95-3	21	U	21	1
10727	2-Nitrophenol	88-75-5	21	U	21	1
10727	4-Nitrophenol	100-02-7	210	U	210	1
10727	N-Nitroso-di-n-propylamine	621-64-7	21	U	21	1
10727	N-Nitrosodiphenylamine	86-30-6	21	U	21	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	85	U	85	1
10727	Pentachlorophenol	87-86-5	43	U	43	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	21	U	21	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	21	U	21	1
10727	2,4,6-Trichlorophenol	88-06-2	21	U	21	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	85.0		0.0223	1
06949	Cadmium	7440-43-9	0.762		0.0248	1
06951	Chromium	7440-47-3	13.2		0.174	1
06955	Lead	7439-92-1	11.6		0.273	1
06936	Selenium	7782-49-2	0.844	U	0.844	1
06966	Silver	7440-22-4	0.103	U	0.103	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	10.2		0.0974	2

Sample Description: S17-SS01-0305-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499065
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 15:50 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

171-3 SDG#: DHR09-10

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0128 J	0.0089	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	21.8	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113562AA	12/23/2011 02:53	Andrea E Lando	0.95
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134826436	12/14/2011 14:37	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134826436	12/14/2011 14:38	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134826436	12/14/2011 14:37	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11350SLB026	12/17/2011 08:19	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11350SLB026	12/16/2011 18:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	113505708001	12/19/2011 10:07	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113505708001	12/19/2011 10:07	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113505708001	12/19/2011 10:07	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113505708001	12/19/2011 10:07	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113505708001	12/20/2011 12:06	Joanne M Gates	1
06966	Silver	SW-846 6010B	1	113505708001	12/19/2011 10:07	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113501026001A	12/28/2011 17:42	David K Beck	2
00159	Mercury	SW-846 7471A	1	113505711001	12/19/2011 07:29	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113505708001	12/18/2011 10:32	James L Mertz	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113501026001	12/18/2011 11:18	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113505711001	12/18/2011 13:20	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11350820003A	12/16/2011 21:15	Scott W Freisher	1

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Analysis Report

Sample Description: S17-SS01-0810-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499066
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 15:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

171-8 SDG#: DHR09-11

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	12	J	7	0.98
10949	Benzene	71-43-2	0.5	U	0.5	0.98
10949	Bromobenzene	108-86-1	1	U	1	0.98
10949	Bromochloromethane	74-97-5	1	U	1	0.98
10949	Bromodichloromethane	75-27-4	1	U	1	0.98
10949	Bromoform	75-25-2	1	U	1	0.98
10949	Bromomethane	74-83-9	2	U	2	0.98
10949	2-Butanone	78-93-3	4	U	4	0.98
10949	n-Butylbenzene	104-51-8	1	U	1	0.98
10949	sec-Butylbenzene	135-98-8	1	U	1	0.98
10949	tert-Butylbenzene	98-06-6	1	U	1	0.98
10949	Carbon Disulfide	75-15-0	1	J	1	0.98
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.98
10949	Chlorobenzene	108-90-7	1	U	1	0.98
10949	Chloroethane	75-00-3	2	U	2	0.98
10949	Chloroform	67-66-3	1	U	1	0.98
10949	Chloromethane	74-87-3	2	U	2	0.98
10949	2-Chlorotoluene	95-49-8	1	U	1	0.98
10949	4-Chlorotoluene	106-43-4	1	U	1	0.98
10949	Cyclohexane	110-82-7	1	U	1	0.98
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.98
10949	Dibromochloromethane	124-48-1	1	U	1	0.98
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.98
10949	Dibromomethane	74-95-3	1	U	1	0.98
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.98
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.98
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.98
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.98
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.98
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.98
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.98
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.98
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.98
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.98
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.98
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.98
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.98
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.98
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.98
10949	Ethylbenzene	100-41-4	1	U	1	0.98
10949	Freon 113	76-13-1	2	U	2	0.98
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.98
10949	2-Hexanone	591-78-6	3	U	3	0.98
10949	Isopropylbenzene	98-82-8	1	U	1	0.98
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.98
10949	Methyl Acetate	79-20-9	2	U	2	0.98
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.98
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.98
10949	Methylcyclohexane	108-87-2	1	U	1	0.98
10949	Methylene Chloride	75-09-2	2	U	2	0.98
10949	Naphthalene	91-20-3	1	U	1	0.98

Sample Description: S17-SS01-0810-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499066
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 15:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

171-8 SDG#: DHR09-11

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.98
10949	Styrene	100-42-5	1	U	1	0.98
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.98
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.98
10949	Tetrachloroethene	127-18-4	1	U	1	0.98
10949	Toluene	108-88-3	1	U	1	0.98
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.98
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.98
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.98
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.98
10949	Trichloroethene	79-01-6	1	U	1	0.98
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.98
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.98
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.98
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.98
10949	Vinyl Acetate	108-05-4	2	U	2	0.98
10949	Vinyl Chloride	75-01-4	1	U	1	0.98
10949	m+p-Xylene	179601-23-1	1	U	1	0.98
10949	o-Xylene	95-47-6	1	U	1	0.98

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 2,2-dichloropropane.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	180	U	180	1
10727	1,1'-Biphenyl	92-52-4	18	U	18	1
10727	4-Bromophenyl-phenylether	101-55-3	18	U	18	1
10727	Butylbenzylphthalate	85-68-7	71	U	71	1
10727	Di-n-butylphthalate	84-74-2	71	U	71	1
10727	Carbazole	86-74-8	18	U	18	1
10727	4-Chloro-3-methylphenol	59-50-7	18	U	18	1
10727	4-Chloroaniline	106-47-8	18	U	18	1
10727	bis(2-Chloroethoxy)methane	111-91-1	18	U	18	1
10727	bis(2-Chloroethyl)ether	111-44-4	18	U	18	1
10727	2-Chloronaphthalene	91-58-7	8	U	8	1
10727	2-Chlorophenol	95-57-8	18	U	18	1
10727	4-Chlorophenyl-phenylether	7005-72-3	18	U	18	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	18	U	18	1
10727	3,3'-Dichlorobenzidine	91-94-1	110	U	110	1
10727	2,4-Dichlorophenol	120-83-2	18	U	18	1

Sample Description: S17-SS01-0810-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499066
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 15:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

171-8 SDG#: DHR09-11

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Diethylphthalate	84-66-2	71	U	71	1
10727	2,4-Dimethylphenol	105-67-9	18	U	18	1
10727	Dimethylphthalate	131-11-3	71	U	71	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	180	U	180	1
10727	2,4-Dinitrophenol	51-28-5	360	U	360	1
10727	2,4-Dinitrotoluene	121-14-2	71	U	71	1
10727	2,6-Dinitrotoluene	606-20-2	18	U	18	1
10727	1,4-Dioxane	123-91-1	110	U	110	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	71	U	71	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	180	U	180	1
10727	Hexachloroethane	67-72-1	36	U	36	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	18	U	18	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	18	U	18	1
10727	4-Methylphenol	106-44-5	18	U	18	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	18	U	18	1
10727	3-Nitroaniline	99-09-2	71	U	71	1
10727	4-Nitroaniline	100-01-6	71	U	71	1
10727	Nitrobenzene	98-95-3	18	U	18	1
10727	2-Nitrophenol	88-75-5	18	U	18	1
10727	4-Nitrophenol	100-02-7	180	U	180	1
10727	N-Nitroso-di-n-propylamine	621-64-7	18	U	18	1
10727	N-Nitrosodiphenylamine	86-30-6	18	U	18	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	71	U	71	1
10727	Pentachlorophenol	87-86-5	36	U	36	1
10727	Phenanthrene	85-01-8	4	J	4	1
10727	Phenol	108-95-2	18	U	18	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	18	U	18	1
10727	2,4,6-Trichlorophenol	88-06-2	18	U	18	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	41.1		0.0189	1
06949	Cadmium	7440-43-9	0.240	J	0.0210	1
06951	Chromium	7440-47-3	4.18		0.147	1
06955	Lead	7439-92-1	2.72		0.231	1
06936	Selenium	7782-49-2	0.715	U	0.715	1
06966	Silver	7440-22-4	0.0872	U	0.0872	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	6.57		0.0841	2

Sample Description: S17-SS01-0810-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499066
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 15:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

171-8 SDG#: DHR09-11

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0074 U	0.0074	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	6.7	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113562AA	12/23/2011 03:16	Andrea E Lando	0.98
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134826436	12/14/2011 14:39	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134826436	12/14/2011 14:40	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134826436	12/14/2011 14:39	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11350SLB026	12/17/2011 08:44	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11350SLB026	12/16/2011 18:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	113505708001	12/19/2011 10:11	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113505708001	12/19/2011 10:11	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113505708001	12/19/2011 10:11	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113505708001	12/19/2011 10:11	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113505708001	12/19/2011 10:11	Eric L Eby	1
06966	Silver	SW-846 6010B	1	113505708001	12/19/2011 10:11	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113501026001A	12/28/2011 17:44	David K Beck	2
00159	Mercury	SW-846 7471A	1	113505711001	12/19/2011 07:30	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113505708001	12/18/2011 10:32	James L Mertz	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113501026001	12/18/2011 11:18	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113505711001	12/18/2011 13:20	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11350820003A	12/16/2011 21:15	Scott W Freisher	1

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Analysis Report

Sample Description: S17-SS01-0608-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499067
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 16:00 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

171-6 SDG#: DHR09-12

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	8	J	8	0.94
10949	Benzene	71-43-2	0.6	U	0.6	0.94
10949	Bromobenzene	108-86-1	1	U	1	0.94
10949	Bromochloromethane	74-97-5	1	U	1	0.94
10949	Bromodichloromethane	75-27-4	1	U	1	0.94
10949	Bromoform	75-25-2	1	U	1	0.94
10949	Bromomethane	74-83-9	2	U	2	0.94
10949	2-Butanone	78-93-3	4	U	4	0.94
10949	n-Butylbenzene	104-51-8	1	U	1	0.94
10949	sec-Butylbenzene	135-98-8	1	U	1	0.94
10949	tert-Butylbenzene	98-06-6	1	U	1	0.94
10949	Carbon Disulfide	75-15-0	1	U	1	0.94
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.94
10949	Chlorobenzene	108-90-7	1	U	1	0.94
10949	Chloroethane	75-00-3	2	U	2	0.94
10949	Chloroform	67-66-3	1	U	1	0.94
10949	Chloromethane	74-87-3	2	U	2	0.94
10949	2-Chlorotoluene	95-49-8	1	U	1	0.94
10949	4-Chlorotoluene	106-43-4	1	U	1	0.94
10949	Cyclohexane	110-82-7	1	U	1	0.94
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.94
10949	Dibromochloromethane	124-48-1	1	U	1	0.94
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.94
10949	Dibromomethane	74-95-3	1	U	1	0.94
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.94
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.94
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.94
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.94
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.94
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.94
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.94
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.94
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.94
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.94
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.94
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.94
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.94
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.94
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.94
10949	Ethylbenzene	100-41-4	1	U	1	0.94
10949	Freon 113	76-13-1	2	U	2	0.94
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.94
10949	2-Hexanone	591-78-6	3	U	3	0.94
10949	Isopropylbenzene	98-82-8	1	U	1	0.94
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.94
10949	Methyl Acetate	79-20-9	2	U	2	0.94
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.6	U	0.6	0.94
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.94
10949	Methylcyclohexane	108-87-2	1	U	1	0.94
10949	Methylene Chloride	75-09-2	2	U	2	0.94
10949	Naphthalene	91-20-3	1	U	1	0.94

Sample Description: S17-SS01-0608-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499067
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 16:00 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

171-6 SDG#: DHR09-12

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.94
10949	Styrene	100-42-5	1	U	1	0.94
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.94
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.94
10949	Tetrachloroethene	127-18-4	1	U	1	0.94
10949	Toluene	108-88-3	1	U	1	0.94
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.94
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.94
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.94
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.94
10949	Trichloroethene	79-01-6	1	U	1	0.94
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.94
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.94
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.94
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.94
10949	Vinyl Acetate	108-05-4	2	U	2	0.94
10949	Vinyl Chloride	75-01-4	1	U	1	0.94
10949	m+p-Xylene	179601-23-1	1	U	1	0.94
10949	o-Xylene	95-47-6	1	U	1	0.94

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 2,2-dichloropropane.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	20	U	20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	80	U	80	1
10727	Di-n-butylphthalate	84-74-2	80	U	80	1
10727	Carbazole	86-74-8	20	U	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	8	U	8	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	20	U	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1

Sample Description: S17-SS01-0608-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499067
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 16:00 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

171-6 SDG#: DHR09-12

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Diethylphthalate	84-66-2	80	U	80	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	80	U	80	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1
10727	2,4-Dinitrophenol	51-28-5	400	U	400	1
10727	2,4-Dinitrotoluene	121-14-2	80	U	80	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	80	U	80	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	40	U	40	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	80	U	80	1
10727	4-Nitroaniline	100-01-6	80	U	80	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	80	U	80	1
10727	Pentachlorophenol	87-86-5	40	U	40	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	20	U	20	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	66.6		0.0207	1
06949	Cadmium	7440-43-9	0.741		0.0229	1
06951	Chromium	7440-47-3	11.3		0.161	1
06955	Lead	7439-92-1	10.7		0.252	1
06936	Selenium	7782-49-2	0.780	U	0.780	1
06966	Silver	7440-22-4	0.0952	U	0.0952	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	10.3		0.0909	2

Sample Description: S17-SS01-0608-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499067
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 16:00 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

171-6 SDG#: DHR09-12

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0080 U	0.0080	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	16.2	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113562AA	12/23/2011 03:39	Andrea E Lando	0.94
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134826436	12/14/2011 14:41	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134826436	12/14/2011 14:41	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134826436	12/14/2011 14:41	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11350SLB026	12/17/2011 09:09	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11350SLB026	12/16/2011 18:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	113505708001	12/19/2011 10:14	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113505708001	12/19/2011 10:14	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113505708001	12/19/2011 10:14	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113505708001	12/19/2011 10:14	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113505708001	12/19/2011 10:14	Eric L Eby	1
06966	Silver	SW-846 6010B	1	113505708001	12/19/2011 10:14	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113501026001A	12/28/2011 17:47	David K Beck	2
00159	Mercury	SW-846 7471A	1	113505711001	12/19/2011 07:32	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113505708001	12/18/2011 10:32	James L Mertz	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113501026001	12/18/2011 11:18	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113505711001	12/18/2011 13:20	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11350820003A	12/16/2011 21:15	Scott W Freisher	1

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Analysis Report

Sample Description: S17-SS01-1315-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499068
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 16:05 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

17113 SDG#: DHR09-13

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	12	J	7	1.02
10949	Benzene	71-43-2	0.5	U	0.5	1.02
10949	Bromobenzene	108-86-1	1	U	1	1.02
10949	Bromochloromethane	74-97-5	1	U	1	1.02
10949	Bromodichloromethane	75-27-4	1	U	1	1.02
10949	Bromoform	75-25-2	1	U	1	1.02
10949	Bromomethane	74-83-9	2	U	2	1.02
10949	2-Butanone	78-93-3	4	U	4	1.02
10949	n-Butylbenzene	104-51-8	1	U	1	1.02
10949	sec-Butylbenzene	135-98-8	1	U	1	1.02
10949	tert-Butylbenzene	98-06-6	1	U	1	1.02
10949	Carbon Disulfide	75-15-0	1	U	1	1.02
10949	Carbon Tetrachloride	56-23-5	1	U	1	1.02
10949	Chlorobenzene	108-90-7	1	U	1	1.02
10949	Chloroethane	75-00-3	2	U	2	1.02
10949	Chloroform	67-66-3	1	U	1	1.02
10949	Chloromethane	74-87-3	2	U	2	1.02
10949	2-Chlorotoluene	95-49-8	1	U	1	1.02
10949	4-Chlorotoluene	106-43-4	1	U	1	1.02
10949	Cyclohexane	110-82-7	1	U	1	1.02
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	1.02
10949	Dibromochloromethane	124-48-1	1	U	1	1.02
10949	1,2-Dibromoethane	106-93-4	1	U	1	1.02
10949	Dibromomethane	74-95-3	1	U	1	1.02
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	1.02
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	1.02
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	1.02
10949	Dichlorodifluoromethane	75-71-8	2	U	2	1.02
10949	1,1-Dichloroethane	75-34-3	1	U	1	1.02
10949	1,2-Dichloroethane	107-06-2	1	U	1	1.02
10949	1,1-Dichloroethene	75-35-4	1	U	1	1.02
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	1.02
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	1.02
10949	1,2-Dichloropropane	78-87-5	1	U	1	1.02
10949	1,3-Dichloropropane	142-28-9	1	U	1	1.02
10949	2,2-Dichloropropane	594-20-7	1	U	1	1.02
10949	1,1-Dichloropropene	563-58-6	1	U	1	1.02
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	1.02
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	1.02
10949	Ethylbenzene	100-41-4	1	U	1	1.02
10949	Freon 113	76-13-1	2	U	2	1.02
10949	Hexachlorobutadiene	87-68-3	2	U	2	1.02
10949	2-Hexanone	591-78-6	3	U	3	1.02
10949	Isopropylbenzene	98-82-8	1	U	1	1.02
10949	p-Isopropyltoluene	99-87-6	1	U	1	1.02
10949	Methyl Acetate	79-20-9	2	U	2	1.02
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	1.02
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	1.02
10949	Methylcyclohexane	108-87-2	1	U	1	1.02
10949	Methylene Chloride	75-09-2	2	U	2	1.02
10949	Naphthalene	91-20-3	1	U	1	1.02

Sample Description: S17-SS01-1315-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499068
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 16:05 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

17113 SDG#: DHR09-13

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	1.02
10949	Styrene	100-42-5	1	U	1	1.02
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	1.02
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	1.02
10949	Tetrachloroethene	127-18-4	1	U	1	1.02
10949	Toluene	108-88-3	1	U	1	1.02
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	1.02
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	1.02
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	1.02
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	1.02
10949	Trichloroethene	79-01-6	1	U	1	1.02
10949	Trichlorofluoromethane	75-69-4	2	U	2	1.02
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	1.02
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	1.02
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	1.02
10949	Vinyl Acetate	108-05-4	2	U	2	1.02
10949	Vinyl Chloride	75-01-4	1	U	1	1.02
10949	m+p-Xylene	179601-23-1	1	U	1	1.02
10949	o-Xylene	95-47-6	1	U	1	1.02

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 2,2-dichloropropane.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	3	U	3	1
10727	Acenaphthylene	208-96-8	3	U	3	1
10727	Anthracene	120-12-7	3	U	3	1
10727	Benzo(a)anthracene	56-55-3	3	U	3	1
10727	Benzo(a)pyrene	50-32-8	3	U	3	1
10727	Benzo(b)fluoranthene	205-99-2	3	U	3	1
10727	Benzo(g,h,i)perylene	191-24-2	3	U	3	1
10727	Benzo(k)fluoranthene	207-08-9	3	U	3	1
10727	Benzyl alcohol	100-51-6	170	U	170	1
10727	1,1'-Biphenyl	92-52-4	17	U	17	1
10727	4-Bromophenyl-phenylether	101-55-3	17	U	17	1
10727	Butylbenzylphthalate	85-68-7	70	U	70	1
10727	Di-n-butylphthalate	84-74-2	70	U	70	1
10727	Carbazole	86-74-8	17	U	17	1
10727	4-Chloro-3-methylphenol	59-50-7	17	U	17	1
10727	4-Chloroaniline	106-47-8	17	U	17	1
10727	bis(2-Chloroethoxy)methane	111-91-1	17	U	17	1
10727	bis(2-Chloroethyl)ether	111-44-4	17	U	17	1
10727	2-Chloronaphthalene	91-58-7	7	U	7	1
10727	2-Chlorophenol	95-57-8	17	U	17	1
10727	4-Chlorophenyl-phenylether	7005-72-3	17	U	17	1
10727	Chrysene	218-01-9	8	J	3	1
10727	Dibenz(a,h)anthracene	53-70-3	3	U	3	1
10727	Dibenzofuran	132-64-9	17	U	17	1
10727	3,3'-Dichlorobenzidine	91-94-1	100	U	100	1
10727	2,4-Dichlorophenol	120-83-2	17	U	17	1

Sample Description: S17-SS01-1315-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499068
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 16:05 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

17113 SDG#: DHR09-13

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Diethylphthalate	84-66-2	70	U	70	1
10727	2,4-Dimethylphenol	105-67-9	17	U	17	1
10727	Dimethylphthalate	131-11-3	70	U	70	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	170	U	170	1
10727	2,4-Dinitrophenol	51-28-5	350	U	350	1
10727	2,4-Dinitrotoluene	121-14-2	70	U	70	1
10727	2,6-Dinitrotoluene	606-20-2	17	U	17	1
10727	1,4-Dioxane	123-91-1	100	U	100	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	70	U	70	1
10727	Fluoranthene	206-44-0	6	J	3	1
10727	Fluorene	86-73-7	3	U	3	1
10727	Hexachlorobenzene	118-74-1	3	U	3	1
10727	Hexachlorocyclopentadiene	77-47-4	170	U	170	1
10727	Hexachloroethane	67-72-1	35	U	35	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	3	U	3	1
10727	Isophorone	78-59-1	17	U	17	1
10727	2-Methylnaphthalene	91-57-6	3	U	3	1
10727	2-Methylphenol	95-48-7	17	U	17	1
10727	4-Methylphenol	106-44-5	17	U	17	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	17	U	17	1
10727	3-Nitroaniline	99-09-2	70	U	70	1
10727	4-Nitroaniline	100-01-6	70	U	70	1
10727	Nitrobenzene	98-95-3	17	U	17	1
10727	2-Nitrophenol	88-75-5	17	U	17	1
10727	4-Nitrophenol	100-02-7	170	U	170	1
10727	N-Nitroso-di-n-propylamine	621-64-7	17	U	17	1
10727	N-Nitrosodiphenylamine	86-30-6	17	U	17	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	70	U	70	1
10727	Pentachlorophenol	87-86-5	35	U	35	1
10727	Phenanthrene	85-01-8	29		3	1
10727	Phenol	108-95-2	17	U	17	1
10727	Pyrene	129-00-0	3	U	3	1
10727	2,4,5-Trichlorophenol	95-95-4	17	U	17	1
10727	2,4,6-Trichlorophenol	88-06-2	17	U	17	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	59.0		0.0186	1
06949	Cadmium	7440-43-9	0.403	J	0.0207	1
06951	Chromium	7440-47-3	4.16		0.145	1
06955	Lead	7439-92-1	4.25		0.228	1
06936	Selenium	7782-49-2	0.704	U	0.704	1
06966	Silver	7440-22-4	0.0859	U	0.0859	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	5.76		0.0828	2

Sample Description: S17-SS01-1315-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499068
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 16:05 by OO

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

17113 SDG#: DHR09-13

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0071 U	0.0071	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	4.3	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113562AA	12/23/2011 04:02	Andrea E Lando	1.02
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134826436	12/14/2011 14:43	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134826436	12/14/2011 14:43	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134826436	12/14/2011 14:42	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11350SLB026	12/17/2011 09:34	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11350SLB026	12/16/2011 18:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	113505708001	12/19/2011 10:25	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113505708001	12/19/2011 10:25	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113505708001	12/19/2011 10:25	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113505708001	12/19/2011 10:25	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113505708001	12/20/2011 12:10	Joanne M Gates	1
06966	Silver	SW-846 6010B	1	113505708001	12/19/2011 10:25	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113501026001A	12/28/2011 17:49	David K Beck	2
00159	Mercury	SW-846 7471A	1	113505711001	12/19/2011 07:33	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113505708001	12/18/2011 10:32	James L Mertz	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113501026001	12/18/2011 11:18	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113505711001	12/18/2011 13:20	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11350820003A	12/16/2011 21:15	Scott W Freisher	1

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Analysis Report

Sample Description: 121311TB Water Sample
Dow Hanging Rock, OH

LLI Sample # WW 6499069
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/01/2011

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

171-T SDG#: DHR09-14TB*

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**		**ug/l**	
10904	Acetone	67-64-1	6	U	6	1
10904	Benzene	71-43-2	0.5	U	0.5	1
10904	Bromobenzene	108-86-1	1	U	1	1
10904	Bromochloromethane	74-97-5	1	U	1	1
10904	Bromodichloromethane	75-27-4	1	U	1	1
10904	Bromoform	75-25-2	1	U	1	1
10904	Bromomethane	74-83-9	1	U	1	1
10904	2-Butanone	78-93-3	3	U	3	1
10904	n-Butylbenzene	104-51-8	1	U	1	1
10904	sec-Butylbenzene	135-98-8	1	U	1	1
10904	tert-Butylbenzene	98-06-6	1	U	1	1
10904	Carbon Disulfide	75-15-0	1	U	1	1
10904	Carbon Tetrachloride	56-23-5	1	U	1	1
10904	Chlorobenzene	108-90-7	0.8	U	0.8	1
10904	Chloroethane	75-00-3	1	U	1	1
10904	Chloroform	67-66-3	0.8	U	0.8	1
10904	Chloromethane	74-87-3	1	U	1	1
10904	2-Chlorotoluene	95-49-8	1	U	1	1
10904	4-Chlorotoluene	106-43-4	1	U	1	1
10904	Cyclohexane	110-82-7	2	U	2	1
10904	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	1
10904	Dibromochloromethane	124-48-1	1	U	1	1
10904	1,2-Dibromoethane	106-93-4	1	U	1	1
10904	Dibromomethane	74-95-3	1	U	1	1
10904	1,2-Dichlorobenzene	95-50-1	1	U	1	1
10904	1,3-Dichlorobenzene	541-73-1	1	U	1	1
10904	1,4-Dichlorobenzene	106-46-7	1	U	1	1
10904	Dichlorodifluoromethane	75-71-8	2	U	2	1
10904	1,1-Dichloroethane	75-34-3	1	U	1	1
10904	1,2-Dichloroethane	107-06-2	1	U	1	1
10904	1,1-Dichloroethene	75-35-4	0.8	U	0.8	1
10904	cis-1,2-Dichloroethene	156-59-2	0.8	U	0.8	1
10904	trans-1,2-Dichloroethene	156-60-5	0.8	U	0.8	1
10904	1,2-Dichloropropane	78-87-5	1	U	1	1
10904	1,3-Dichloropropane	142-28-9	1	U	1	1
10904	2,2-Dichloropropane	594-20-7	1	U	1	1
10904	1,1-Dichloropropene	563-58-6	1	U	1	1
10904	cis-1,3-Dichloropropene	10061-01-5	1	U	1	1
10904	trans-1,3-Dichloropropene	10061-02-6	1	U	1	1
10904	Ethylbenzene	100-41-4	0.8	U	0.8	1
10904	Freon 113	76-13-1	2	U	2	1
10904	Hexachlorobutadiene	87-68-3	2	U	2	1
10904	2-Hexanone	591-78-6	3	U	3	1
10904	Isopropylbenzene	98-82-8	1	U	1	1
10904	p-Isopropyltoluene	99-87-6	1	U	1	1
10904	Methyl Acetate	79-20-9	1	U	1	1
10904	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	1
10904	4-Methyl-2-pentanone	108-10-1	3	U	3	1
10904	Methylcyclohexane	108-87-2	1	U	1	1
10904	Methylene Chloride	75-09-2	2	U	2	1
10904	Naphthalene	91-20-3	1	U	1	1

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Analysis Report

Sample Description: 121311TB Water Sample
Dow Hanging Rock, OH

LLI Sample # WW 6499069
LLI Group # 1280965
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/01/2011

Submitted: 12/14/2011 09:20
Reported: 12/30/2011 15:39

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

171-T SDG#: DHR09-14TB*

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**		**ug/l**	
10904	n-Propylbenzene	103-65-1	1	U	1	1
10904	Styrene	100-42-5	1	U	1	1
10904	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	1
10904	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	1
10904	Tetrachloroethene	127-18-4	0.8	U	0.8	1
10904	Toluene	108-88-3	0.7	U	0.7	1
10904	1,2,3-Trichlorobenzene	87-61-6	1	U	1	1
10904	1,2,4-Trichlorobenzene	120-82-1	1	U	1	1
10904	1,1,1-Trichloroethane	71-55-6	0.8	U	0.8	1
10904	1,1,2-Trichloroethane	79-00-5	0.8	U	0.8	1
10904	Trichloroethene	79-01-6	1	U	1	1
10904	Trichlorofluoromethane	75-69-4	2	U	2	1
10904	1,2,3-Trichloropropane	96-18-4	1	U	1	1
10904	1,2,4-Trimethylbenzene	95-63-6	1	U	1	1
10904	1,3,5-Trimethylbenzene	108-67-8	1	U	1	1
10904	Vinyl Acetate	108-05-4	2	U	2	1
10904	Vinyl Chloride	75-01-4	1	U	1	1
10904	m+p-Xylene	179601-23-1	0.8	U	0.8	1
10904	o-Xylene	95-47-6	0.8	U	0.8	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10904	8260 Ext. Water Master	SW-846 8260B	1	Y113501AA	12/16/2011 05:38	Angela D Sneeringer	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	Y113501AA	12/16/2011 05:38	Angela D Sneeringer	1

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280965
Reported: 12/30/11 at 03:39 PM

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: A113561AA	Sample number(s): 6499053-6499058,6499060-6499061								
Acetone	7	U	7.	ug/kg	113		32-209		
Benzene	0.5	U	0.5	ug/kg	93		80-120		
Bromobenzene	1	U	1.	ug/kg	97		79-120		
Bromochloromethane	1	U	1.	ug/kg	92		79-124		
Bromodichloromethane	1	U	1.	ug/kg	91		78-120		
Bromoform	1	U	1.	ug/kg	91		70-120		
Bromomethane	2	U	2.	ug/kg	87		32-162		
2-Butanone	4	U	4.	ug/kg	116		46-153		
n-Butylbenzene	1	U	1.	ug/kg	99		72-120		
sec-Butylbenzene	1	U	1.	ug/kg	102		75-120		
tert-Butylbenzene	1	U	1.	ug/kg	97		75-120		
Carbon Disulfide	1	U	1.	ug/kg	82		67-122		
Carbon Tetrachloride	1	U	1.	ug/kg	94		69-122		
Chlorobenzene	1	U	1.	ug/kg	95		80-120		
Chloroethane	2	U	2.	ug/kg	83		37-154		
Chloroform	1	U	1.	ug/kg	97		80-120		
Chloromethane	2	U	2.	ug/kg	77		54-132		
2-Chlorotoluene	1	U	1.	ug/kg	94		78-120		
4-Chlorotoluene	1	U	1.	ug/kg	97		79-120		
Cyclohexane	1	U	1.	ug/kg	98		62-121		
1,2-Dibromo-3-chloropropane	2	U	2.	ug/kg	108		58-120		
Dibromochloromethane	1	U	1.	ug/kg	90		77-120		
1,2-Dibromoethane	1	U	1.	ug/kg	99		80-120		
Dibromomethane	1	U	1.	ug/kg	92		80-120		
1,2-Dichlorobenzene	1	U	1.	ug/kg	96		79-120		
1,3-Dichlorobenzene	1	U	1.	ug/kg	98		78-120		
1,4-Dichlorobenzene	1	U	1.	ug/kg	97		79-120		
Dichlorodifluoromethane	2	U	2.	ug/kg	79		20-120		
1,1-Dichloroethane	1	U	1.	ug/kg	96		80-120		
1,2-Dichloroethane	1	U	1.	ug/kg	111		71-129		
1,1-Dichloroethene	1	U	1.	ug/kg	88		73-123		
cis-1,2-Dichloroethene	1	U	1.	ug/kg	90		80-120		
trans-1,2-Dichloroethene	1	U	1.	ug/kg	88		79-120		
1,2-Dichloropropane	1	U	1.	ug/kg	89		80-120		
1,3-Dichloropropane	1	U	1.	ug/kg	98		80-120		
2,2-Dichloropropane	1	U	1.	ug/kg	89		72-123		
1,1-Dichloropropene	1	U	1.	ug/kg	95		77-120		
cis-1,3-Dichloropropene	1	U	1.	ug/kg	87		80-120		
trans-1,3-Dichloropropene	1	U	1.	ug/kg	91		77-120		
Ethylbenzene	1	U	1.	ug/kg	100		80-120		
Freon 113	2	U	2.	ug/kg	92		61-126		
Hexachlorobutadiene	2	U	2.	ug/kg	103		57-120		
2-Hexanone	3	U	3.	ug/kg	99		45-155		
Isopropylbenzene	1	U	1.	ug/kg	102		76-120		
p-Isopropyltoluene	1	U	1.	ug/kg	102		75-120		

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280965
Reported: 12/30/11 at 03:39 PM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Methyl Acetate	2	U	2.	ug/kg	125		61-152		
Methyl Tertiary Butyl Ether	0.5	U	0.5	ug/kg	97		74-121		
4-Methyl-2-pentanone	3	U	3.	ug/kg	113		61-134		
Methylcyclohexane	1	U	1.	ug/kg	101		57-138		
Methylene Chloride	2	U	2.	ug/kg	87		76-124		
Naphthalene	1	U	1.	ug/kg	102		59-123		
n-Propylbenzene	1	U	1.	ug/kg	102		77-120		
Styrene	1	U	1.	ug/kg	100		76-120		
1,1,1,2-Tetrachloroethane	1	U	1.	ug/kg	94		80-120		
1,1,2,2-Tetrachloroethane	1	U	1.	ug/kg	95		71-123		
Tetrachloroethene	1	U	1.	ug/kg	100		77-120		
Toluene	1	U	1.	ug/kg	95		80-120		
1,2,3-Trichlorobenzene	1	U	1.	ug/kg	103		64-120		
1,2,4-Trichlorobenzene	1	U	1.	ug/kg	98		68-120		
1,1,1-Trichloroethane	1	U	1.	ug/kg	95		71-125		
1,1,2-Trichloroethane	1	U	1.	ug/kg	97		80-120		
Trichloroethene	1	U	1.	ug/kg	91		80-120		
Trichlorofluoromethane	2	U	2.	ug/kg	105		58-133		
1,2,3-Trichloropropane	1	U	1.	ug/kg	99		71-123		
1,2,4-Trimethylbenzene	1	U	1.	ug/kg	101		79-120		
1,3,5-Trimethylbenzene	1	U	1.	ug/kg	102		78-120		
Vinyl Acetate	2	U	2.	ug/kg	92	89	56-137	3	30
Vinyl Chloride	1	U	1.	ug/kg	78		53-120		
m+p-Xylene	1	U	1.	ug/kg	97		80-120		
o-Xylene	1	U	1.	ug/kg	95		80-120		
Batch number: A113562AA	Sample number(s): 6499062-6499068								
Acetone	7	U	7.	ug/kg	120		32-209		
Benzene	0.5	U	0.5	ug/kg	93		80-120		
Bromobenzene	1	U	1.	ug/kg	100		79-120		
Bromochloromethane	1	U	1.	ug/kg	89		79-124		
Bromodichloromethane	1	U	1.	ug/kg	87		78-120		
Bromoform	1	U	1.	ug/kg	83		70-120		
Bromomethane	2	U	2.	ug/kg	90		32-162		
2-Butanone	4	U	4.	ug/kg	106		46-153		
n-Butylbenzene	1	U	1.	ug/kg	100		72-120		
sec-Butylbenzene	1	U	1.	ug/kg	104		75-120		
tert-Butylbenzene	1	U	1.	ug/kg	100		75-120		
Carbon Disulfide	1	U	1.	ug/kg	99		67-122		
Carbon Tetrachloride	1	U	1.	ug/kg	85		69-122		
Chlorobenzene	1	U	1.	ug/kg	97		80-120		
Chloroethane	2	U	2.	ug/kg	87		37-154		
Chloroform	1	U	1.	ug/kg	95		80-120		
Chloromethane	2	U	2.	ug/kg	86		54-132		
2-Chlorotoluene	1	U	1.	ug/kg	99		78-120		
4-Chlorotoluene	1	U	1.	ug/kg	99		79-120		
Cyclohexane	1	U	1.	ug/kg	97		62-121		
1,2-Dibromo-3-chloropropane	2	U	2.	ug/kg	94		58-120		
Dibromochloromethane	1	U	1.	ug/kg	90		77-120		
1,2-Dibromoethane	1	U	1.	ug/kg	96		80-120		
Dibromomethane	1	U	1.	ug/kg	88		80-120		
1,2-Dichlorobenzene	1	U	1.	ug/kg	99		79-120		
1,3-Dichlorobenzene	1	U	1.	ug/kg	99		78-120		
1,4-Dichlorobenzene	1	U	1.	ug/kg	98		79-120		
Dichlorodifluoromethane	2	U	2.	ug/kg	82		20-120		
1,1-Dichloroethane	1	U	1.	ug/kg	100		80-120		
1,2-Dichloroethane	1	U	1.	ug/kg	103		71-129		
1,1-Dichloroethene	1	U	1.	ug/kg	91		73-123		

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(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280965
Reported: 12/30/11 at 03:39 PM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
cis-1,2-Dichloroethene	1	U	1.	ug/kg	89		80-120		
trans-1,2-Dichloroethene	1	U	1.	ug/kg	92		79-120		
1,2-Dichloropropane	1	U	1.	ug/kg	92		80-120		
1,3-Dichloropropane	1	U	1.	ug/kg	99		80-120		
2,2-Dichloropropane	1	U	1.	ug/kg	71*		72-123		
1,1-Dichloropropene	1	U	1.	ug/kg	94		77-120		
cis-1,3-Dichloropropene	1	U	1.	ug/kg	80		80-120		
trans-1,3-Dichloropropene	1	U	1.	ug/kg	85		77-120		
Ethylbenzene	1	U	1.	ug/kg	102		80-120		
Freon 113	2	U	2.	ug/kg	93		61-126		
Hexachlorobutadiene	2	U	2.	ug/kg	100		57-120		
2-Hexanone	3	U	3.	ug/kg	94		45-155		
Isopropylbenzene	1	U	1.	ug/kg	102		76-120		
p-Isopropyltoluene	1	U	1.	ug/kg	102		75-120		
Methyl Acetate	2	U	2.	ug/kg	111		61-152		
Methyl Tertiary Butyl Ether	0.5	U	0.5	ug/kg	95		74-121		
4-Methyl-2-pentanone	3	U	3.	ug/kg	102		61-134		
Methylcyclohexane	1	U	1.	ug/kg	92		57-138		
Methylene Chloride	2	U	2.	ug/kg	91		76-124		
Naphthalene	1	U	1.	ug/kg	95		59-123		
n-Propylbenzene	1	U	1.	ug/kg	104		77-120		
Styrene	1	U	1.	ug/kg	102		76-120		
1,1,1,2-Tetrachloroethane	1	U	1.	ug/kg	95		80-120		
1,1,2,2-Tetrachloroethane	1	U	1.	ug/kg	94		71-123		
Tetrachloroethene	1	U	1.	ug/kg	100		77-120		
Toluene	1	U	1.	ug/kg	98		80-120		
1,2,3-Trichlorobenzene	1	U	1.	ug/kg	100		64-120		
1,2,4-Trichlorobenzene	1	U	1.	ug/kg	96		68-120		
1,1,1-Trichloroethane	1	U	1.	ug/kg	87		71-125		
1,1,2-Trichloroethane	1	U	1.	ug/kg	96		80-120		
Trichloroethene	1	U	1.	ug/kg	89		80-120		
Trichlorofluoromethane	2	U	2.	ug/kg	100		58-133		
1,2,3-Trichloropropane	1	U	1.	ug/kg	93		71-123		
1,2,4-Trimethylbenzene	1	U	1.	ug/kg	102		79-120		
1,3,5-Trimethylbenzene	1	U	1.	ug/kg	103		78-120		
Vinyl Acetate	2	U	2.	ug/kg	95		56-137		
Vinyl Chloride	1	U	1.	ug/kg	85		53-120		
m+p-Xylene	1	U	1.	ug/kg	98		80-120		
o-Xylene	1	U	1.	ug/kg	97		80-120		
Batch number: Y113501AA	Sample number(s): 6499069								
Acetone	6	U	6.	ug/l	155	137	49-234	13	30
Benzene	0.5	U	0.5	ug/l	106	106	79-120	0	30
Bromobenzene	1	U	1.	ug/l	111	109	80-120	1	30
Bromochloromethane	1	U	1.	ug/l	94	96	80-120	1	30
Bromodichloromethane	1	U	1.	ug/l	92	91	80-120	1	30
Bromoform	1	U	1.	ug/l	88	87	61-120	1	30
Bromomethane	1	U	1.	ug/l	78	73	44-120	6	30
2-Butanone	3	U	3.	ug/l	127	120	66-151	6	30
n-Butylbenzene	1	U	1.	ug/l	116	117	74-120	1	30
sec-Butylbenzene	1	U	1.	ug/l	119	119	78-120	0	30
tert-Butylbenzene	1	U	1.	ug/l	102	103	80-120	1	30
Carbon Disulfide	1	U	1.	ug/l	89	90	62-120	1	30
Carbon Tetrachloride	1	U	1.	ug/l	85	84	75-123	1	30
Chlorobenzene	0.8	U	0.8	ug/l	101	101	80-120	0	30
Chloroethane	1	U	1.	ug/l	75	72	49-129	5	30
Chloroform	0.8	U	0.8	ug/l	100	100	77-122	0	30
Chloromethane	1	U	1.	ug/l	98	98	60-129	0	30

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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280965
Reported: 12/30/11 at 03:39 PM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
2-Chlorotoluene	1	U	1.	ug/l	113	112	80-120	1	30
4-Chlorotoluene	1	U	1.	ug/l	110	107	80-120	2	30
Cyclohexane	2	U	2.	ug/l	107	105	65-125	2	30
1,2-Dibromo-3-chloropropane	2	U	2.	ug/l	113	111	56-126	2	30
Dibromochloromethane	1	U	1.	ug/l	95	93	80-120	2	30
1,2-Dibromoethane	1	U	1.	ug/l	104	104	80-120	0	30
Dibromomethane	1	U	1.	ug/l	96	95	80-120	1	30
1,2-Dichlorobenzene	1	U	1.	ug/l	106	105	80-120	1	30
1,3-Dichlorobenzene	1	U	1.	ug/l	110	110	80-120	0	30
1,4-Dichlorobenzene	1	U	1.	ug/l	109	107	80-120	2	30
Dichlorodifluoromethane	2	U	2.	ug/l	77	77	47-120	0	30
1,1-Dichloroethane	1	U	1.	ug/l	101	101	79-120	1	30
1,2-Dichloroethane	1	U	1.	ug/l	94	93	70-130	1	30
1,1-Dichloroethene	0.8	U	0.8	ug/l	94	94	74-123	0	30
cis-1,2-Dichloroethene	0.8	U	0.8	ug/l	101	102	80-120	1	30
trans-1,2-Dichloroethene	0.8	U	0.8	ug/l	99	100	80-120	0	30
1,2-Dichloropropane	1	U	1.	ug/l	104	104	78-120	0	30
1,3-Dichloropropane	1	U	1.	ug/l	107	106	80-120	1	30
2,2-Dichloropropane	1	U	1.	ug/l	87	89	77-124	2	30
1,1-Dichloropropene	1	U	1.	ug/l	99	98	80-120	1	30
cis-1,3-Dichloropropene	1	U	1.	ug/l	97	97	80-120	0	30
trans-1,3-Dichloropropene	1	U	1.	ug/l	97	98	79-120	1	30
Ethylbenzene	0.8	U	0.8	ug/l	103	103	79-120	0	30
Freon 113	2	U	2.	ug/l	97	92	69-128	5	30
Hexachlorobutadiene	2	U	2.	ug/l	96	97	58-120	1	30
2-Hexanone	3	U	3.	ug/l	117	114	65-136	3	30
Isopropylbenzene	1	U	1.	ug/l	101	100	77-120	1	30
p-Isopropyltoluene	1	U	1.	ug/l	112	112	80-120	0	30
Methyl Acetate	1	U	1.	ug/l	135	132	64-151	2	30
Methyl Tertiary Butyl Ether	0.5	U	0.5	ug/l	101	101	76-120	1	30
4-Methyl-2-pentanone	3	U	3.	ug/l	108	107	70-121	1	30
Methylcyclohexane	1	U	1.	ug/l	106	105	71-132	0	30
Methylene Chloride	2	U	2.	ug/l	113	114	80-120	2	30
Naphthalene	1	U	1.	ug/l	107	107	62-120	0	30
n-Propylbenzene	1	U	1.	ug/l	124*	124*	80-120	0	30
Styrene	1	U	1.	ug/l	96	94	80-120	1	30
1,1,1,2-Tetrachloroethane	1	U	1.	ug/l	93	93	80-120	0	30
1,1,2,2-Tetrachloroethane	1	U	1.	ug/l	128*	125*	71-120	2	30
Tetrachloroethene	0.8	U	0.8	ug/l	93	92	80-121	0	30
Toluene	0.7	U	0.7	ug/l	107	107	79-120	0	30
1,2,3-Trichlorobenzene	1	U	1.	ug/l	104	104	65-120	0	30
1,2,4-Trichlorobenzene	1	U	1.	ug/l	101	101	67-120	0	30
1,1,1-Trichloroethane	0.8	U	0.8	ug/l	90	91	75-127	1	30
1,1,2-Trichloroethane	0.8	U	0.8	ug/l	107	106	80-120	1	30
Trichloroethene	1	U	1.	ug/l	99	97	80-120	2	30
Trichlorofluoromethane	2	U	2.	ug/l	84	82	64-129	2	30
1,2,3-Trichloropropane	1	U	1.	ug/l	119	118	80-120	1	30
1,2,4-Trimethylbenzene	1	U	1.	ug/l	117	118	74-120	1	30
1,3,5-Trimethylbenzene	1	U	1.	ug/l	115	114	75-120	1	30
Vinyl Acetate	2	U	2.	ug/l	103	103	57-147	0	30
Vinyl Chloride	1	U	1.	ug/l	88	88	65-125	1	30
m+p-Xylene	0.8	U	0.8	ug/l	99	99	80-120	0	30
o-Xylene	0.8	U	0.8	ug/l	97	97	80-120	0	30
Batch number: 11350SLB026	Sample number(s): 6499053-6499058,6499060-6499068								
Acenaphthene	3	U	3.	ug/kg	97		83-111		
Acenaphthylene	3	U	3.	ug/kg	106		68-120		
Anthracene	3	U	3.	ug/kg	99		83-111		

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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280965
Reported: 12/30/11 at 03:39 PM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Benzo(a)anthracene	3	U	3.	ug/kg	91		82-111		
Benzo(a)pyrene	3	U	3.	ug/kg	102		63-138		
Benzo(b)fluoranthene	3	U	3.	ug/kg	100		61-133		
Benzo(g,h,i)perylene	3	U	3.	ug/kg	97		63-130		
Benzo(k)fluoranthene	3	U	3.	ug/kg	107		71-135		
Benzyl alcohol	170	U	170.	ug/kg	95		68-111		
1,1'-Biphenyl	17	U	17.	ug/kg	99		82-106		
4-Bromophenyl-phenylether	17	U	17.	ug/kg	100		79-117		
Butylbenzylphthalate	67	U	67.	ug/kg	95		77-125		
Di-n-butylphthalate	67	U	67.	ug/kg	99		79-112		
Carbazole	17	U	17.	ug/kg	96		83-111		
4-Chloro-3-methylphenol	17	U	17.	ug/kg	96		74-119		
4-Chloroaniline	17	U	17.	ug/kg	42		10-97		
bis(2-Chloroethoxy)methane	17	U	17.	ug/kg	99		82-113		
bis(2-Chloroethyl)ether	17	U	17.	ug/kg	96		77-115		
2-Chloronaphthalene	7	U	7.	ug/kg	108		50-117		
2-Chlorophenol	17	U	17.	ug/kg	100		83-119		
4-Chlorophenyl-phenylether	17	U	17.	ug/kg	101		79-110		
Chrysene	3	U	3.	ug/kg	95		81-111		
Dibenz(a,h)anthracene	3	U	3.	ug/kg	98		67-129		
Dibenzofuran	17	U	17.	ug/kg	98		85-110		
3,3'-Dichlorobenzidine	100	U	100.	ug/kg	30		17-116		
2,4-Dichlorophenol	17	U	17.	ug/kg	101		87-117		
Diethylphthalate	67	U	67.	ug/kg	99		82-113		
2,4-Dimethylphenol	17	U	17.	ug/kg	98		83-120		
Dimethylphthalate	67	U	67.	ug/kg	100		85-111		
4,6-Dinitro-2-methylphenol	170	U	170.	ug/kg	71		60-113		
2,4-Dinitrophenol	330	U	330.	ug/kg	45		39-126		
2,4-Dinitrotoluene	67	U	67.	ug/kg	100		80-116		
2,6-Dinitrotoluene	17	U	17.	ug/kg	101		79-115		
1,4-Dioxane	100	U	100.	ug/kg	56		38-75		
bis(2-Ethylhexyl)phthalate	67	U	67.	ug/kg	94		75-124		
Fluoranthene	3	U	3.	ug/kg	97		80-113		
Fluorene	3	U	3.	ug/kg	101		81-117		
Hexachlorobenzene	3	U	3.	ug/kg	97		79-115		
Hexachlorocyclopentadiene	170	U	170.	ug/kg	106		64-127		
Hexachloroethane	33	U	33.	ug/kg	91		76-109		
Indeno(1,2,3-cd)pyrene	3	U	3.	ug/kg	98		64-128		
Isophorone	17	U	17.	ug/kg	97		72-107		
2-Methylnaphthalene	3	U	3.	ug/kg	95		79-110		
2-Methylphenol	17	U	17.	ug/kg	101		80-119		
4-Methylphenol	17	U	17.	ug/kg	101		74-116		
2-Nitroaniline	17	U	17.	ug/kg	99		83-118		
3-Nitroaniline	67	U	67.	ug/kg	90		66-114		
4-Nitroaniline	67	U	67.	ug/kg	67		52-92		
Nitrobenzene	17	U	17.	ug/kg	96		78-122		
2-Nitrophenol	17	U	17.	ug/kg	96		81-114		
4-Nitrophenol	170	U	170.	ug/kg	79		57-131		
N-Nitroso-di-n-propylamine	17	U	17.	ug/kg	89		70-113		
N-Nitrosodiphenylamine	17	U	17.	ug/kg	103		86-112		
Di-n-octylphthalate	67	U	67.	ug/kg	105		65-141		
Pentachlorophenol	33	U	33.	ug/kg	88		50-133		
Phenanthrene	3	U	3.	ug/kg	97		83-109		
Phenol	17	U	17.	ug/kg	97		74-115		
Pyrene	3	U	3.	ug/kg	96		80-121		
2,4,5-Trichlorophenol	17	U	17.	ug/kg	100		84-109		
2,4,6-Trichlorophenol	17	U	17.	ug/kg	100		88-114		

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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280965
Reported: 12/30/11 at 03:39 PM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 113501026001A	Sample number(s): 6499053-6499068								
Arsenic	0.0792	U	0.0792	mg/kg	99		83-111		
Batch number: 113505708001	Sample number(s): 6499053-6499068								
Barium	0.0221	J	0.0173	mg/kg	96		89-112		
Cadmium	0.0192	U	0.0192	mg/kg	95		88-117		
Chromium	0.135	U	0.135	mg/kg	96		80-111		
Lead	0.320	J	0.212	mg/kg	95		90-115		
Selenium	0.654	U	0.654	mg/kg	94		83-111		
Silver	0.0798	U	0.0798	mg/kg	95		86-112		
Batch number: 113505711001	Sample number(s): 6499053-6499068								
Mercury	0.0066	U	0.0066	mg/kg	87		83-119		
Batch number: 11350820003A	Sample number(s): 6499053-6499068								
Moisture					100		99-101		
Moisture					100		99-101		
Moisture Duplicate					100		99-101		

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: A113561AA	Sample number(s): 6499053-6499058,6499060-6499061 UNSPK: 6499056								
Acetone	120	102	31-195	10	30				
Benzene	92	95	55-143	2	30				
Bromobenzene	84	85	43-139	1	30				
Bromochloromethane	84	91	60-137	6	30				
Bromodichloromethane	84	86	53-136	0	30				
Bromoform	82	81	38-124	2	30				
Bromomethane	95	99	42-168	2	30				
2-Butanone	140	123	37-163	13	30				
n-Butylbenzene	73	81	30-146	9	30				
sec-Butylbenzene	79	89	33-157	11	30				
tert-Butylbenzene	78	87	41-152	9	30				
Carbon Disulfide	73	84	48-146	12	30				
Carbon Tetrachloride	87	97	45-153	10	30				
Chlorobenzene	84	87	49-135	3	30				
Chloroethane	80	90	39-152	10	30				
Chloroform	90	95	61-142	4	30				
Chloromethane	93	86	51-163	9	30				
2-Chlorotoluene	80	85	42-146	5	30				
4-Chlorotoluene	81	83	39-145	0	30				
Cyclohexane	87	104	57-151	17	30				
1,2-Dibromo-3-chloropropane	97	100	30-139	2	30				
Dibromochloromethane	84	84	51-128	1	30				
1,2-Dibromoethane	92	95	54-129	1	30				
Dibromomethane	88	88	57-130	2	30				
1,2-Dichlorobenzene	73	79	36-133	6	30				
1,3-Dichlorobenzene	77	81	34-134	4	30				
1,4-Dichlorobenzene	76	78	35-136	2	30				

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280965
Reported: 12/30/11 at 03:39 PM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Dichlorodifluoromethane	89	88	26-151	3	30				
1,1-Dichloroethane	92	99	63-142	6	30				
1,2-Dichloroethane	108	107	68-131	2	30				
1,1-Dichloroethene	84	93	61-149	9	30				
cis-1,2-Dichloroethene	80	88	60-136	8	30				
trans-1,2-Dichloroethene	79	91	59-142	12	30				
1,2-Dichloropropane	89	88	62-135	3	30				
1,3-Dichloropropane	96	94	58-129	3	30				
2,2-Dichloropropane	89	94	53-147	4	30				
1,1-Dichloropropene	90	101	54-145	10	30				
cis-1,3-Dichloropropene	80	80	51-131	1	30				
trans-1,3-Dichloropropene	83	85	49-129	1	30				
Ethylbenzene	88	93	44-141	3	30				
Freon 113	91	98	56-156	7	30				
Hexachlorobutadiene	63	76	10-155	18	30				
2-Hexanone	115	109	32-160	7	30				
Isopropylbenzene	82	93	38-144	11	30				
p-Isopropyltoluene	76	85	29-152	11	30				
Methyl Acetate	142	135	48-161	6	30				
Methyl Tertiary Butyl Ether	94	96	55-129	0	30				
4-Methyl-2-pentanone	130	120	46-139	9	30				
Methylcyclohexane	78	99	39-168	22	30				
Methylene Chloride	80	87	61-141	7	30				
Naphthalene	63	76	10-138	19	30				
n-Propylbenzene	85	91	39-157	6	30				
Styrene	85	77	35-134	11	30				
1,1,1,2-Tetrachloroethane	82	87	52-130	4	30				
1,1,2,2-Tetrachloroethane	93	93	40-152	2	30				
Tetrachloroethene	87	97	42-149	9	30				
Toluene	91	92	50-146	0	30				
1,2,3-Trichlorobenzene	61	71	10-140	14	30				
1,2,4-Trichlorobenzene	57	68	10-136	16	30				
1,1,1-Trichloroethane	90	99	64-142	8	30				
1,1,2-Trichloroethane	92	93	54-139	1	30				
Trichloroethene	83	89	53-144	6	30				
Trichlorofluoromethane	114	115	47-163	0	30				
1,2,3-Trichloropropane	99	98	45-154	3	30				
1,2,4-Trimethylbenzene	76	85	37-149	10	30				
1,3,5-Trimethylbenzene	83	90	38-150	8	30				
Vinyl Chloride	85	88	50-154	3	30				
m+p-Xylene	84	88	44-137	4	30				
o-Xylene	81	86	42-137	6	30				
Batch number: A113562AA	Sample number(s): 6499062-6499068 UNSPK: P504145								
Acetone	123	124	31-195	1	30				
Benzene	70	66	55-143	4	30				
Bromobenzene	39*	38*	43-139	2	30				
Bromochloromethane	76	77	60-137	2	30				
Bromodichloromethane	63	60	53-136	3	30				
Bromoform	54	56	38-124	4	30				
Bromomethane	76	73	42-168	4	30				
2-Butanone	125	132	37-163	6	30				
n-Butylbenzene	16*	12*	30-146	29	30				

*- Outside of specification
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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280965
Reported: 12/30/11 at 03:39 PM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
sec-Butylbenzene	23*	19*	33-157	21	30				
tert-Butylbenzene	28*	25*	41-152	12	30				
Carbon Disulfide	78	76	48-146	2	30				
Carbon Tetrachloride	70	66	45-153	5	30				
Chlorobenzene	42*	38*	49-135	9	30				
Chloroethane	73	69	39-152	6	30				
Chloroform	78	77	61-142	1	30				
Chloromethane	63	59	51-163	7	30				
2-Chlorotoluene	29*	26*	42-146	10	30				
4-Chlorotoluene	27*	24*	39-145	10	30				
Cyclohexane	82	78	57-151	5	30				
1,2-Dibromo-3-chloropropane	76	80	30-139	6	30				
Dibromochloromethane	61	60	51-128	0	30				
1,2-Dibromoethane	70	71	54-129	2	30				
Dibromomethane	70	70	57-130	1	30				
1,2-Dichlorobenzene	31*	30*	36-133	2	30				
1,3-Dichlorobenzene	26*	24*	34-134	7	30				
1,4-Dichlorobenzene	27*	25*	35-136	7	30				
Dichlorodifluoromethane	55	55	26-151	0	30				
1,1-Dichloroethane	85	83	63-142	2	30				
1,2-Dichloroethane	89	88	68-131	0	30				
1,1-Dichloroethene	85	83	61-149	2	30				
cis-1,2-Dichloroethene	72	71	60-136	1	30				
trans-1,2-Dichloroethene	74	72	59-142	3	30				
1,2-Dichloropropane	68	66	62-135	3	30				
1,3-Dichloropropane	73	75	58-129	3	30				
2,2-Dichloropropane	70	69	53-147	0	30				
1,1-Dichloropropene	71	66	54-145	6	30				
cis-1,3-Dichloropropene	51	48*	51-131	5	30				
trans-1,3-Dichloropropene	55	54	49-129	1	30				
Ethylbenzene	38*	33*	44-141	15	30				
Freon 113	94	93	56-156	1	30				
Hexachlorobutadiene	15	11	10-155	25	30				
2-Hexanone	101	114	32-160	12	30				
Isopropylbenzene	31*	25*	38-144	19	30				
p-Isopropyltoluene	20*	15*	29-152	26	30				
Methyl Acetate	124	131	48-161	6	30				
Methyl Tertiary Butyl Ether	92	94	55-129	3	30				
4-Methyl-2-pentanone	111	116	46-139	5	30				
Methylcyclohexane	74	70	39-168	5	30				
Methylene Chloride	82	80	61-141	1	30				
Naphthalene	34	36	10-138	5	30				
n-Propylbenzene	27*	23*	39-157	17	30				
Styrene	34*	31*	35-134	10	30				
1,1,1,2-Tetrachloroethane	51*	48*	52-130	5	30				
1,1,2,2-Tetrachloroethane	76	82	40-152	8	30				
Tetrachloroethene	49	43	42-149	12	30				
Toluene	54	51	50-146	6	30				
1,2,3-Trichlorobenzene	25	24	10-140	4	30				
1,2,4-Trichlorobenzene	20	19	10-136	5	30				
1,1,1-Trichloroethane	74	71	64-142	4	30				
1,1,2-Trichloroethane	75	78	54-139	3	30				
Trichloroethene	58	53	53-144	8	30				

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280965
Reported: 12/30/11 at 03:39 PM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Trichlorofluoromethane	92	89	47-163	3	30				
1,2,3-Trichloropropane	82	91	45-154	11	30				
1,2,4-Trimethylbenzene	25*	21*	37-149	15	30				
1,3,5-Trimethylbenzene	27*	23*	38-150	18	30				
Vinyl Acetate	78	79	21-139	4	30				
Vinyl Chloride	64	60	50-154	5	30				
m+p-Xylene	35*	29*	44-137	19	30				
o-Xylene	34*	30*	42-137	13	30				
Batch number: 11350SLB026	Sample number(s): 6499053-6499058,6499060-6499068 UNSPK: 6499056								
Acenaphthene	92	78	41-135	16	30				
Acenaphthylene	101	86	47-137	16	30				
Anthracene	93	80	40-147	15	30				
Benzo(a)anthracene	85	73	32-150	15	30				
Benzo(a)pyrene	93	78	57-129	17	30				
Benzo(b)fluoranthene	89	77	53-131	15	30				
Benzo(g,h,i)perylene	93	78	60-123	18	30				
Benzo(k)fluoranthene	92	78	61-131	16	30				
Benzyl alcohol	91	80	63-128	14	30				
1,1'-Biphenyl	93	85	51-127	9	30				
4-Bromophenyl-phenylether	97	84	46-131	15	30				
Butylbenzylphthalate	92	83	26-161	10	30				
Di-n-butylphthalate	92	82	32-139	11	30				
Carbazole	88	78	36-148	13	30				
4-Chloro-3-methylphenol	86	77	33-144	11	30				
4-Chloroaniline	66	68	11-114	2	30				
bis(2-Chloroethoxy)methane	95	85	44-132	11	30				
bis(2-Chloroethyl)ether	96	81	45-139	17	30				
2-Chloronaphthalene	105	92	22-131	13	30				
2-Chlorophenol	93	81	29-151	14	30				
4-Chlorophenyl-phenylether	91	80	42-130	14	30				
Chrysene	89	76	76-114	16	30				
Dibenz(a,h)anthracene	93	80	37-151	15	30				
Dibenzofuran	92	79	38-148	15	30				
3,3'-Dichlorobenzidine	68	70	10-143	2	30				
2,4-Dichlorophenol	91	82	35-142	10	30				
Diethylphthalate	90	80	32-137	12	30				
2,4-Dimethylphenol	82	77	27-143	6	30				
Dimethylphthalate	93	83	26-141	12	30				
4,6-Dinitro-2-methylphenol	88	82	10-148	7	30				
2,4-Dinitrophenol	69	68	20-143	2	30				
2,4-Dinitrotoluene	89	80	27-147	11	30				
2,6-Dinitrotoluene	94	84	44-140	10	30				
1,4-Dioxane	51	38	31-77	29	30				
bis(2-Ethylhexyl)phthalate	94	86	38-151	9	30				
Fluoranthene	86	73	48-122	16	30				
Fluorene	92	79	35-140	15	30				
Hexachlorobenzene	94	79	53-137	17	30				
Hexachlorocyclopentadiene	92	77	10-153	17	30				
Hexachloroethane	91	74	71-104	20	30				
Indeno(1,2,3-cd)pyrene	93	79	61-123	17	30				
Isophorone	92	82	54-122	12	30				
2-Methylnaphthalene	89	79	23-141	12	30				

*- Outside of specification
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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280965
Reported: 12/30/11 at 03:39 PM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
2-Methylphenol	92	81	30-145	12	30				
4-Methylphenol	95	84	36-149	12	30				
2-Nitroaniline	92	82	46-146	11	30				
3-Nitroaniline	84	77	34-134	9	30				
4-Nitroaniline	67	63	26-124	6	30				
Nitrobenzene	92	82	37-139	12	30				
2-Nitrophenol	91	81	25-151	12	30				
4-Nitrophenol	72	65	15-149	10	30				
N-Nitroso-di-n-propylamine	86	75	46-128	14	30				
N-Nitrosodiphenylamine	98	86	33-148	13	30				
Di-n-octylphthalate	97	88	43-149	10	30				
Pentachlorophenol	65	60	23-145	8	30				
Phenanthrene	90	77	34-147	15	30				
Phenol	91	81	39-151	12	30				
Pyrene	90	76	76-124	16	30				
2,4,5-Trichlorophenol	94	84	25-143	12	30				
2,4,6-Trichlorophenol	91	83	41-142	9	30				
Batch number: 113501026001A	Sample number(s): 6499053-6499068 UNSPK: 6499056 BKG: 6499056								
Arsenic	112 (2)	86 (2)	75-125	5	20	9.22	10.2	10	20
Batch number: 113505708001	Sample number(s): 6499053-6499068 UNSPK: 6499056 BKG: 6499056								
Barium	102	103	75-125	1	20	68.1	69.7	2	20
Cadmium	94	94	75-125	0	20	0.798	0.803	1 (1)	20
Chromium	114	115	75-125	0	20	14.7	14.6	1	20
Lead	94	103	75-125	5	20	11.2	11.7	5	20
Selenium	97	99	75-125	2	20	0.673 U	0.680 U	0 (1)	20
Silver	92	93	75-125	2	20	0.0822 U	0.0830 U	0 (1)	20
Batch number: 113505711001	Sample number(s): 6499053-6499068 UNSPK: 6499056 BKG: 6499056								
Mercury	96	97	80-120	2	20	0.0123 J	0.0114 J	7 (1)	20
Batch number: 11350820003A	Sample number(s): 6499053-6499068 BKG: 6499056								
Moisture						18.1	18.6	3	15
Moisture						18.1	18.6	3	15
Moisture Duplicate						18.1	18.6	3	15

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed
unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 8260 Ext. Soil Master
Batch number: A113561AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
6499053	101	99	100	97
6499054	102	100	102	94
6499055	102	102	101	95
6499056	101	100	103	93

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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280965
Reported: 12/30/11 at 03:39 PM

Surrogate Quality Control

6499057	98	102	105	98
6499058	100	102	104	98
6499060	103	106	111	83
6499061	102	103	108	88
Blank	100	100	101	95
LCS	100	101	103	99
MS	98	102	105	98
MSD	100	102	104	98
Limits:	71-114	70-109	70-123	70-111

Analysis Name: 8260 Ext. Soil Master
Batch number: A113562AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
6499062	100	104	104	93
6499063	98	98	103	94
6499064	99	103	104	95
6499065	101	103	103	95
6499066	100	101	104	95
6499067	99	101	103	94
6499068	100	104	104	95
Blank	98	97	103	94
LCS	98	98	106	98
MS	99	98	109	95
MSD	99	98	110	94
Limits:	71-114	70-109	70-123	70-111

Analysis Name: 8260 Ext. Water Master
Batch number: Y113501AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
6499069	92	98	100	94
Blank	93	99	101	94
LCS	92	102	103	100
LCSD	92	100	102	100
Limits:	80-116	77-113	80-113	78-113

Analysis Name: TCL 8270 (microwave)
Batch number: 11350SLB026

	Phenol-d6	2-Fluorophenol	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
6499053	90	96	81	89	97	103
6499054	90	96	79	89	96	103
6499055	92	97	78	88	97	102
6499056	87	91	73	80	86	86
6499057	91	95	75	87	94	97
6499058	80	83	68	78	82	83
6499060	91	97	78	88	97	102
6499061	91	96	81	90	97	104
6499062	88	92	80	87	95	102
6499063	90	93	81	86	97	102
6499064	83	87	75	81	90	97
6499065	91	97	80	87	96	100
6499066	92	98	82	88	99	104

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280965
Reported: 12/30/11 at 03:39 PM

Surrogate Quality Control

6499067	90	94	82	85	94	103
6499068	90	95	80	86	96	105
Blank	93	97	92	87	94	104
LCS	96	101	88	90	96	103
MS	91	95	75	87	94	97
MSD	80	83	68	78	82	83
Limits:	42-130	39-136	28-139	45-123	56-121	43-124

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Analysis Request/ Environmental Services Chain of Custody

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Acct. # 11372 Group# 1280965 Sample # 6499053-69

COC # 276345

Please print. Instructions on reverse side correspond with circled numbers.

(1) Client: Dow Hanging Rock Acct. #:

Project Name/#: 420671-01-FI PWSID #:

Project Manager: Marc Holland P.O.#: 420671-04

Sampler: Osceola Ogbebor Quote #:

Name of state where samples were collected:

(2) Sample Identification	Date Collected	Time Collected	(3) Grab	(3) Composite	(4) Matrix: Soil	Water (Potable / NPDES)	Other	Total # of Containers	(5) Analyses Requested: VOCs	SVOCs	Metals	Moisture Content	Remarks
S19-SS01-0002-121311	12/13/11	1355		X	X			4	✓	✓	✓	✓	
S19-SS01-0305-121311	12/13/11	1400		X	X			4	✓	✓	✓	✓	
S19-SS01-0810-121311	12/13/11	1420		X	X			4	✓	✓	✓	✓	
S19-SS02-0002-121311	12/13/11	1455		X	X			4	✓	✓	✓	✓	
S19-SS02-0002-121311 MS	12/13/11	1455		X	X			4	✓	✓	✓	✓	
S19-SS02-0002-121311 MSD	12/13/11	1455		X	X			4	✓	✓	✓	✓	
S19-SS02-0305-121311	12/13/11	1500		X	X			4	✓	✓	✓	✓	
S19-SS02-0810-121311	12/13/11	1505		X	X			4	✓	✓	✓	✓	
S19-SS02-1618-121311	12/13/11	1515		X	X			4	✓	✓	✓	✓	
S17-SS01-0002-121311	12/13/11	1545		X	X			4	✓	✓	✓	✓	

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

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FSC:
SCR#:

(6) Temperature of samples upon receipt (if requested)

(7) **Turnaround Time Requested** (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed:
Rush results requested by (please circle): Phone Fax E-mail
Phone #: Fax #:
E-mail address:

(8) **Data Package Options** (please circle if required)
Type I (validation/NJ Reg)
Type II (Tier II)
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)
TX TRRP-13
MA MCP CT RCP
SDG Complete? Yes No
Site-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate volume.)
Internal COC Required? Yes / No

(9)

Relinquished by:	Date	Time	Received by:	Date	Time
Osceola	12/13/11	1830			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	12/14/11	0920

Analysis Request/ Environmental Services Chain of Custody

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Page 4 of 4

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Acct. # 11372 Group# 1280965 Sample # 6499053-69

COC # 276346

Please print. Instructions on reverse side correspond with circled numbers.

(1) Client: Bow Hanging Rock Acct. #:

Project Name/#: 420671-01 - FT PWSID #:

Project Manager: Mark Holland P.O.#: 420671-04

Sampler: Osagiuwu Ogbebor Quote #:

Name of state where samples were collected: Ohio

(2) Sample Identification	Date Collected	Time Collected	(3) Grab	(3) Composite	(4) Matrix: Soil	Water (Potable / NPDES)	Other	(4) Total # of Containers	(5) Analyses Requested / Preservation Codes: VOCs	SVOCs	Metals	Moisture Content	Remarks
HGR-121311-FD02	12/13/11	—		X	X			4	✓	✓	✓	✓	
S17-SS01-0305-121311	12/13/11	1550		X	X			4	✓	✓	✓	✓	
S17-SS01-0810-121311	12/13/11	1555		X	X			4	✓	✓	✓	✓	
S17 SS01-0608-121311	12/13/11	1600		X	X			4	✓	✓	✓	✓	
S17-SS01-1315-121311	12/13/11	1605		X	X			4	✓	✓	✓	✓	
121311 TB	12/9/11	—	X			X		2	✓				

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

For Lab Use Only
FSC:
SCR#:

(6) Temperature of samples upon receipt (if requested)

(7) **Turnaround Time Requested** (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed:
Rush results requested by (please circle): Phone Fax E-mail
Phone #: Fax #:
E-mail address:

(8) **Data Package Options** (please circle if required)
Type I (validation/NJ Reg)
Type II (Tier II)
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)
TX TRRP-13
MA MCP CT RCP
SDG Complete? Yes No
Site-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate volume.)
Internal COC Required? Yes / No

(9)

Relinquished by:	Date	Time	Received by:	Date	Time
Osagiuwu	12/13/11	1830			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	12/14/11	0920

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

J estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike sample not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*****	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL LANCASTER LABORATORIES BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF LANCASTER LABORATORIES AND (B) WHETHER LANCASTER LABORATORIES HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Lancaster Laboratories which includes any conditions that vary from the Standard Terms and Conditions, and Lancaster hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Analysis Report

ANALYTICAL RESULTS

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425

Prepared for:

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

January 04, 2012

Project: Dow Hanging Rock, OH

Submittal Date: 12/15/2011
Group Number: 1281221
SDG: DHR10
PO Number: 420671-04
Release Number: DHR10
State of Sample Origin: OH

Client Sample Description	Lancaster Labs (LLI) #
AOD-SS02-0002-121411 Composite Soil Sample	6500540
AOD-SS02-0305-121411 Composite Soil Sample	6500541
AOD-SS02-0810-121411 Composite Soil Sample	6500542
AOD-SS02-1315-121411 Composite Soil Sample	6500543
AOD-SS01-0002-121411 Composite Soil Sample	6500544
AOD-SS01-0305-121411 Composite Soil Sample	6500545
AOD-SS01-0810-121411 Composite Soil Sample	6500546
AOD-SS01-2123-121411 Composite Soil Sample	6500547
S24-SS01-0002-121411 Composite Soil Sample	6500548
S24-SS01-0305-121411 Composite Soil Sample	6500549
S24-SS01-0810-121411 Composite Soil Sample	6500550
S24-SS01-2123-121411 Composite Soil Sample	6500551
HGR-121411-EB01 Grab Water Sample	6500552
S17-SS02-0002-121411 Composite Soil Sample	6500553
S17-SS02-0002-121411MS Composite Soil Sample	6500554
S17-SS02-0002-121411MSD Composite Soil Sample	6500555
S17-SS02-0002-121411DUP Composite Soil Sample	6500556
S17-SS02-0305-121411 Composite Soil Sample	6500557
S17-SS02-0810-121411 Composite Soil Sample	6500558
S17-SS02-1517-121411 Composite Soil Sample	6500559
121411TB Water Sample	6500560

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Shane Lowe
ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Rachel Grand
1 COPY TO	Data Package Group	

Questions? Contact your Client Services Representative
Wendy A Kozma at (717) 656-2300 Ext. 1522

Respectfully Submitted,

Lawrence M. Taylor
Senior Specialist

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2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Sample Description: AOD-SS02-0002-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500540
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 09:30 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

AOD21 SDG#: DHR10-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	340	U	340	39.62
10949	Benzene	71-43-2	73	J	24	39.62
10949	Bromobenzene	108-86-1	49	U	49	39.62
10949	Bromochloromethane	74-97-5	49	U	49	39.62
10949	Bromodichloromethane	75-27-4	49	U	49	39.62
10949	Bromoform	75-25-2	49	U	49	39.62
10949	Bromomethane	74-83-9	98	U	98	39.62
10949	2-Butanone	78-93-3	200	U	200	39.62
10949	n-Butylbenzene	104-51-8	49	U	49	39.62
10949	sec-Butylbenzene	135-98-8	49	U	49	39.62
10949	tert-Butylbenzene	98-06-6	49	U	49	39.62
10949	Carbon Disulfide	75-15-0	49	U	49	39.62
10949	Carbon Tetrachloride	56-23-5	49	U	49	39.62
10949	Chlorobenzene	108-90-7	49	U	49	39.62
10949	Chloroethane	75-00-3	98	U	98	39.62
10949	Chloroform	67-66-3	49	U	49	39.62
10949	Chloromethane	74-87-3	98	U	98	39.62
10949	2-Chlorotoluene	95-49-8	49	U	49	39.62
10949	4-Chlorotoluene	106-43-4	49	U	49	39.62
10949	Cyclohexane	110-82-7	49	U	49	39.62
10949	1,2-Dibromo-3-chloropropane	96-12-8	98	U	98	39.62
10949	Dibromochloromethane	124-48-1	49	U	49	39.62
10949	1,2-Dibromoethane	106-93-4	49	U	49	39.62
10949	Dibromomethane	74-95-3	49	U	49	39.62
10949	1,2-Dichlorobenzene	95-50-1	49	U	49	39.62
10949	1,3-Dichlorobenzene	541-73-1	49	U	49	39.62
10949	1,4-Dichlorobenzene	106-46-7	49	U	49	39.62
10949	Dichlorodifluoromethane	75-71-8	98	U	98	39.62
10949	1,1-Dichloroethane	75-34-3	49	U	49	39.62
10949	1,2-Dichloroethane	107-06-2	49	U	49	39.62
10949	1,1-Dichloroethene	75-35-4	49	U	49	39.62
10949	cis-1,2-Dichloroethene	156-59-2	49	U	49	39.62
10949	trans-1,2-Dichloroethene	156-60-5	49	U	49	39.62
10949	1,2-Dichloropropane	78-87-5	49	U	49	39.62
10949	1,3-Dichloropropane	142-28-9	49	U	49	39.62
10949	2,2-Dichloropropane	594-20-7	49	U	49	39.62
10949	1,1-Dichloropropene	563-58-6	49	U	49	39.62
10949	cis-1,3-Dichloropropene	10061-01-5	49	U	49	39.62
10949	trans-1,3-Dichloropropene	10061-02-6	49	U	49	39.62
10949	Ethylbenzene	100-41-4	6,500		49	39.62
10949	Freon 113	76-13-1	98	U	98	39.62
10949	Hexachlorobutadiene	87-68-3	98	U	98	39.62
10949	2-Hexanone	591-78-6	150	U	150	39.62
10949	Isopropylbenzene	98-82-8	250		49	39.62
10949	p-Isopropyltoluene	99-87-6	49	U	49	39.62
10949	Methyl Acetate	79-20-9	120	J	98	39.62
10949	Methyl Tertiary Butyl Ether	1634-04-4	24	U	24	39.62
10949	4-Methyl-2-pentanone	108-10-1	150	U	150	39.62
10949	Methylcyclohexane	108-87-2	49	U	49	39.62
10949	Methylene Chloride	75-09-2	98	U	98	39.62
10949	Naphthalene	91-20-3	49	U	49	39.62

Sample Description: AOD-SS02-0002-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500540
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 09:30 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

AOD21 SDG#: DHR10-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	99	J	49	39.62
10949	Styrene	100-42-5	49	U	49	39.62
10949	1,1,1,2-Tetrachloroethane	630-20-6	49	U	49	39.62
10949	1,1,2,2-Tetrachloroethane	79-34-5	49	U	49	39.62
10949	Tetrachloroethene	127-18-4	49	U	49	39.62
10949	Toluene	108-88-3	49	U	49	39.62
10949	1,2,3-Trichlorobenzene	87-61-6	49	U	49	39.62
10949	1,2,4-Trichlorobenzene	120-82-1	49	U	49	39.62
10949	1,1,1-Trichloroethane	71-55-6	49	U	49	39.62
10949	1,1,2-Trichloroethane	79-00-5	49	U	49	39.62
10949	Trichloroethene	79-01-6	49	U	49	39.62
10949	Trichlorofluoromethane	75-69-4	98	U	98	39.62
10949	1,2,3-Trichloropropane	96-18-4	49	U	49	39.62
10949	1,2,4-Trimethylbenzene	95-63-6	49	U	49	39.62
10949	1,3,5-Trimethylbenzene	108-67-8	49	U	49	39.62
10949	Vinyl Acetate	108-05-4	98	U	98	39.62
10949	Vinyl Chloride	75-01-4	49	U	49	39.62
10949	m+p-Xylene	179601-23-1	210	J	49	39.62
10949	o-Xylene	95-47-6	56	J	49	39.62
Trial ID: RE						
10949	Acetone	67-64-1	340	U	340	39.62
10949	Benzene	71-43-2	75	J	24	39.62
10949	Bromobenzene	108-86-1	49	U	49	39.62
10949	Bromochloromethane	74-97-5	49	U	49	39.62
10949	Bromodichloromethane	75-27-4	49	U	49	39.62
10949	Bromoform	75-25-2	49	U	49	39.62
10949	Bromomethane	74-83-9	98	U	98	39.62
10949	2-Butanone	78-93-3	200	U	200	39.62
10949	n-Butylbenzene	104-51-8	49	U	49	39.62
10949	sec-Butylbenzene	135-98-8	49	U	49	39.62
10949	tert-Butylbenzene	98-06-6	49	U	49	39.62
10949	Carbon Disulfide	75-15-0	49	U	49	39.62
10949	Carbon Tetrachloride	56-23-5	49	U	49	39.62
10949	Chlorobenzene	108-90-7	49	U	49	39.62
10949	Chloroethane	75-00-3	98	U	98	39.62
10949	Chloroform	67-66-3	49	U	49	39.62
10949	Chloromethane	74-87-3	98	U	98	39.62
10949	2-Chlorotoluene	95-49-8	49	U	49	39.62
10949	4-Chlorotoluene	106-43-4	49	U	49	39.62
10949	Cyclohexane	110-82-7	49	U	49	39.62
10949	1,2-Dibromo-3-chloropropane	96-12-8	98	U	98	39.62
10949	Dibromochloromethane	124-48-1	49	U	49	39.62
10949	1,2-Dibromoethane	106-93-4	49	U	49	39.62
10949	Dibromomethane	74-95-3	49	U	49	39.62
10949	1,2-Dichlorobenzene	95-50-1	49	U	49	39.62
10949	1,3-Dichlorobenzene	541-73-1	49	U	49	39.62
10949	1,4-Dichlorobenzene	106-46-7	49	U	49	39.62
10949	Dichlorodifluoromethane	75-71-8	98	U	98	39.62
10949	1,1-Dichloroethane	75-34-3	49	U	49	39.62
10949	1,2-Dichloroethane	107-06-2	49	U	49	39.62

Sample Description: AOD-SS02-0002-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500540
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 09:30 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

AOD21 SDG#: DHR10-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	1,1-Dichloroethene	75-35-4	49	U	49	39.62
10949	cis-1,2-Dichloroethene	156-59-2	49	U	49	39.62
10949	trans-1,2-Dichloroethene	156-60-5	49	U	49	39.62
10949	1,2-Dichloropropane	78-87-5	49	U	49	39.62
10949	1,3-Dichloropropane	142-28-9	49	U	49	39.62
10949	2,2-Dichloropropane	594-20-7	49	U	49	39.62
10949	1,1-Dichloropropene	563-58-6	49	U	49	39.62
10949	cis-1,3-Dichloropropene	10061-01-5	49	U	49	39.62
10949	trans-1,3-Dichloropropene	10061-02-6	49	U	49	39.62
10949	Ethylbenzene	100-41-4	6,700		49	39.62
10949	Freon 113	76-13-1	98	U	98	39.62
10949	Hexachlorobutadiene	87-68-3	98	U	98	39.62
10949	2-Hexanone	591-78-6	150	U	150	39.62
10949	Isopropylbenzene	98-82-8	270		49	39.62
10949	p-Isopropyltoluene	99-87-6	49	U	49	39.62
10949	Methyl Acetate	79-20-9	98	U	98	39.62
10949	Methyl Tertiary Butyl Ether	1634-04-4	24	U	24	39.62
10949	4-Methyl-2-pentanone	108-10-1	150	U	150	39.62
10949	Methylcyclohexane	108-87-2	49	U	49	39.62
10949	Methylene Chloride	75-09-2	98	U	98	39.62
10949	Naphthalene	91-20-3	49	U	49	39.62
10949	n-Propylbenzene	103-65-1	100	J	49	39.62
10949	Styrene	100-42-5	49	U	49	39.62
10949	1,1,1,2-Tetrachloroethane	630-20-6	49	U	49	39.62
10949	1,1,2,2-Tetrachloroethane	79-34-5	49	U	49	39.62
10949	Tetrachloroethene	127-18-4	49	U	49	39.62
10949	Toluene	108-88-3	49	U	49	39.62
10949	1,2,3-Trichlorobenzene	87-61-6	49	U	49	39.62
10949	1,2,4-Trichlorobenzene	120-82-1	49	U	49	39.62
10949	1,1,1-Trichloroethane	71-55-6	49	U	49	39.62
10949	1,1,2-Trichloroethane	79-00-5	49	U	49	39.62
10949	Trichloroethene	79-01-6	49	U	49	39.62
10949	Trichlorofluoromethane	75-69-4	98	U	98	39.62
10949	1,2,3-Trichloropropane	96-18-4	49	U	49	39.62
10949	1,2,4-Trimethylbenzene	95-63-6	49	U	49	39.62
10949	1,3,5-Trimethylbenzene	108-67-8	49	U	49	39.62
10949	Vinyl Acetate	108-05-4	98	U	98	39.62
10949	Vinyl Chloride	75-01-4	49	U	49	39.62
10949	m+p-Xylene	179601-23-1	230	J	49	39.62
10949	o-Xylene	95-47-6	64	J	49	39.62
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	5	J	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	9	J	4	1
10727	Benzo(a)anthracene	56-55-3	12	J	4	1
10727	Benzo(a)pyrene	50-32-8	15	J	4	1
10727	Benzo(b)fluoranthene	205-99-2	19	J	4	1
10727	Benzo(g,h,i)perylene	191-24-2	11	J	4	1
10727	Benzo(k)fluoranthene	207-08-9	10	J	4	1
10727	Benzyl alcohol	100-51-6	210	U	210	1

Sample Description: AOD-SS02-0002-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500540
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 09:30 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

AOD21 SDG#: DHR10-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C			**ug/kg**		**ug/kg**	
10727	1,1'-Biphenyl	92-52-4	21	U	21	1
10727	4-Bromophenyl-phenylether	101-55-3	21	U	21	1
10727	Butylbenzylphthalate	85-68-7	82	U	82	1
10727	Di-n-butylphthalate	84-74-2	82	U	82	1
10727	Carbazole	86-74-8	21	U	21	1
10727	4-Chloro-3-methylphenol	59-50-7	21	U	21	1
10727	4-Chloroaniline	106-47-8	21	U	21	1
10727	bis(2-Chloroethoxy)methane	111-91-1	21	U	21	1
10727	bis(2-Chloroethyl)ether	111-44-4	21	U	21	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	21	U	21	1
10727	4-Chlorophenyl-phenylether	7005-72-3	21	U	21	1
10727	Chrysene	218-01-9	17	J	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	21	U	21	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	21	U	21	1
10727	Diethylphthalate	84-66-2	82	U	82	1
10727	2,4-Dimethylphenol	105-67-9	21	U	21	1
10727	Dimethylphthalate	131-11-3	82	U	82	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	210	U	210	1
10727	2,4-Dinitrophenol	51-28-5	410	U	410	1
10727	2,4-Dinitrotoluene	121-14-2	82	U	82	1
10727	2,6-Dinitrotoluene	606-20-2	21	U	21	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	82	U	82	1
10727	Fluoranthene	206-44-0	40		4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	210	U	210	1
10727	Hexachloroethane	67-72-1	41	U	41	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	21	U	21	1
10727	2-Methylnaphthalene	91-57-6	8	J	4	1
10727	2-Methylphenol	95-48-7	21	U	21	1
10727	4-Methylphenol	106-44-5	21	U	21	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	21	U	21	1
10727	3-Nitroaniline	99-09-2	82	U	82	1
10727	4-Nitroaniline	100-01-6	82	U	82	1
10727	Nitrobenzene	98-95-3	21	U	21	1
10727	2-Nitrophenol	88-75-5	21	U	21	1
10727	4-Nitrophenol	100-02-7	210	U	210	1
10727	N-Nitroso-di-n-propylamine	621-64-7	21	U	21	1
10727	N-Nitrosodiphenylamine	86-30-6	21	U	21	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	82	U	82	1

Sample Description: AOD-SS02-0002-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500540
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 09:30 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

AOD21 SDG#: DHR10-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Pentachlorophenol	87-86-5	41	U	41	1
10727	Phenanthrene	85-01-8	46		4	1
10727	Phenol	108-95-2	21	U	21	1
10727	Pyrene	129-00-0	34		4	1
10727	2,4,5-Trichlorophenol	95-95-4	21	U	21	1
10727	2,4,6-Trichlorophenol	88-06-2	21	U	21	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	117		0.0220	1
06949	Cadmium	7440-43-9	0.868		0.0244	1
06951	Chromium	7440-47-3	14.8		0.171	1
06955	Lead	7439-92-1	11.2		0.269	1
06936	Selenium	7782-49-2	0.830	U	0.830	1
06966	Silver	7440-22-4	0.101	U	0.101	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	8.52		0.0977	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0150	J	0.0082	1
Wet Chemistry	**SM20 2540 G**		**%**		**%**	
00111	Moisture	n.a.	18.9		0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	R113571AA	12/23/2011 06:29	Stephanie A Selis	39.62
10949	8260 Ext. Soil Master	SW-846 8260B	2	R113571AA	12/23/2011 11:50	Stephanie A Selis	39.62
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134926443	12/15/2011 12:10	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134926443	12/15/2011 12:11	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134926443	12/15/2011 12:10	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11350SLE026	12/19/2011 11:45	Matthew S Woods	1
10809	BNA Soil Microwave	SW-846 3546	1	11350SLE026	12/17/2011 11:30	Sally L Appleyard	1
06946	Barium	SW-846 6010B	1	113505708003	12/20/2011 21:42	John W Yanzuk II	1
06949	Cadmium	SW-846 6010B	1	113505708003	12/22/2011 20:48	John P Hook	1
06951	Chromium	SW-846 6010B	1	113505708003	12/20/2011 21:42	John W Yanzuk II	1
06955	Lead	SW-846 6010B	1	113505708003	12/22/2011 20:48	John P Hook	1
06936	Selenium	SW-846 6010B	1	113505708003	12/20/2011 21:42	John W Yanzuk II	1

Sample Description: AOD-SS02-0002-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500540
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 09:30 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

AOD21 SDG#: DHR10-01

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06966	Silver	SW-846 6010B	1	113505708003	12/20/2011 21:42	John W Yanzuk II	1
06125	Arsenic	SW-846 6020	1	113501026002A	12/22/2011 15:44	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113505711003	12/19/2011 09:01	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113505708003	12/18/2011 19:56	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113501026002	12/18/2011 19:58	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113505711003	12/18/2011 23:10	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11350820002A	12/16/2011 18:29	Scott W Freisher	1

Sample Description: AOD-SS02-0305-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500541
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 09:35 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

AOD22 SDG#: DHR10-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	17	J	7	0.86
10949	Benzene	71-43-2	1	J	0.5	0.86
10949	Bromobenzene	108-86-1	1	U	1	0.86
10949	Bromochloromethane	74-97-5	1	U	1	0.86
10949	Bromodichloromethane	75-27-4	1	U	1	0.86
10949	Bromoform	75-25-2	1	U	1	0.86
10949	Bromomethane	74-83-9	2	U	2	0.86
10949	2-Butanone	78-93-3	4	U	4	0.86
10949	n-Butylbenzene	104-51-8	1	U	1	0.86
10949	sec-Butylbenzene	135-98-8	1	U	1	0.86
10949	tert-Butylbenzene	98-06-6	1	U	1	0.86
10949	Carbon Disulfide	75-15-0	1	U	1	0.86
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.86
10949	Chlorobenzene	108-90-7	1	U	1	0.86
10949	Chloroethane	75-00-3	2	U	2	0.86
10949	Chloroform	67-66-3	1	U	1	0.86
10949	Chloromethane	74-87-3	2	U	2	0.86
10949	2-Chlorotoluene	95-49-8	1	U	1	0.86
10949	4-Chlorotoluene	106-43-4	1	U	1	0.86
10949	Cyclohexane	110-82-7	1	U	1	0.86
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.86
10949	Dibromochloromethane	124-48-1	1	U	1	0.86
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.86
10949	Dibromomethane	74-95-3	1	U	1	0.86
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.86
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.86
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.86
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.86
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.86
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.86
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.86
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.86
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.86
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.86
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.86
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.86
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.86
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.86
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.86
10949	Ethylbenzene	100-41-4	1	U	1	0.86
10949	Freon 113	76-13-1	2	U	2	0.86
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.86
10949	2-Hexanone	591-78-6	3	U	3	0.86
10949	Isopropylbenzene	98-82-8	1	U	1	0.86
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.86
10949	Methyl Acetate	79-20-9	2	U	2	0.86
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.86
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.86
10949	Methylcyclohexane	108-87-2	1	U	1	0.86
10949	Methylene Chloride	75-09-2	2	U	2	0.86
10949	Naphthalene	91-20-3	1	U	1	0.86

Sample Description: AOD-SS02-0305-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500541
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 09:35 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

AOD22 SDG#: DHR10-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.86
10949	Styrene	100-42-5	1	U	1	0.86
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.86
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.86
10949	Tetrachloroethene	127-18-4	1	U	1	0.86
10949	Toluene	108-88-3	1	U	1	0.86
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.86
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.86
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.86
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.86
10949	Trichloroethene	79-01-6	1	U	1	0.86
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.86
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.86
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.86
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.86
10949	Vinyl Acetate	108-05-4	2	U	2	0.86
10949	Vinyl Chloride	75-01-4	1	U	1	0.86
10949	m+p-Xylene	179601-23-1	1	U	1	0.86
10949	o-Xylene	95-47-6	1	U	1	0.86

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 4-methyl-2-pentanone.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	20	U	20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	81	U	81	1
10727	Di-n-butylphthalate	84-74-2	81	U	81	1
10727	Carbazole	86-74-8	20	U	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	8	U	8	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	20	U	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1

Sample Description: AOD-SS02-0305-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500541
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 09:35 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

AOD22 SDG#: DHR10-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Diethylphthalate	84-66-2	81	U	81	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	81	U	81	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1
10727	2,4-Dinitrophenol	51-28-5	400	U	400	1
10727	2,4-Dinitrotoluene	121-14-2	81	U	81	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	81	U	81	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	40	U	40	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	81	U	81	1
10727	4-Nitroaniline	100-01-6	81	U	81	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	81	U	81	1
10727	Pentachlorophenol	87-86-5	40	U	40	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	20	U	20	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	92.3		0.0215	1
06949	Cadmium	7440-43-9	1.25		0.0239	1
06951	Chromium	7440-47-3	17.3		0.167	1
06955	Lead	7439-92-1	10.4		0.263	1
06936	Selenium	7782-49-2	0.813	U	0.813	1
06966	Silver	7440-22-4	0.943		0.0992	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	11.0		0.0947	2

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Analysis Report

Sample Description: AOD-SS02-0305-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500541
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 09:35 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

AOD22 SDG#: DHR10-02

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0116 J	0.0083	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	17.2	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	Q113562AA	12/23/2011 08:56	Sara E Johnson	0.86
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134926443	12/15/2011 12:12	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134926443	12/15/2011 12:13	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134926443	12/15/2011 12:12	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11350SLE026	12/19/2011 12:11	Matthew S Woods	1
10809	BNA Soil Microwave	SW-846 3546	1	11350SLE026	12/17/2011 11:30	Sally L Appleyard	1
06946	Barium	SW-846 6010B	1	113505708003	12/20/2011 21:46	John W Yanzuk II	1
06949	Cadmium	SW-846 6010B	1	113505708003	12/22/2011 20:52	John P Hook	1
06951	Chromium	SW-846 6010B	1	113505708003	12/20/2011 21:46	John W Yanzuk II	1
06955	Lead	SW-846 6010B	1	113505708003	12/22/2011 20:52	John P Hook	1
06936	Selenium	SW-846 6010B	1	113505708003	12/20/2011 21:46	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	113505708003	12/20/2011 21:46	John W Yanzuk II	1
06125	Arsenic	SW-846 6020	1	113501026002A	12/22/2011 15:46	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113505711003	12/19/2011 09:02	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113505708003	12/18/2011 19:56	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113501026002	12/18/2011 19:58	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113505711003	12/18/2011 23:10	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11350820002A	12/16/2011 18:29	Scott W Freisher	1

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Analysis Report

Sample Description: AOD-SS02-0810-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500542
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 09:40 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

AOD23 SDG#: DHR10-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	29		7	0.85
10949	Benzene	71-43-2	0.5	U	0.5	0.85
10949	Bromobenzene	108-86-1	1	U	1	0.85
10949	Bromochloromethane	74-97-5	1	U	1	0.85
10949	Bromodichloromethane	75-27-4	1	U	1	0.85
10949	Bromoform	75-25-2	1	U	1	0.85
10949	Bromomethane	74-83-9	2	U	2	0.85
10949	2-Butanone	78-93-3	4	U	4	0.85
10949	n-Butylbenzene	104-51-8	1	U	1	0.85
10949	sec-Butylbenzene	135-98-8	1	U	1	0.85
10949	tert-Butylbenzene	98-06-6	1	U	1	0.85
10949	Carbon Disulfide	75-15-0	1	U	1	0.85
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.85
10949	Chlorobenzene	108-90-7	1	U	1	0.85
10949	Chloroethane	75-00-3	2	U	2	0.85
10949	Chloroform	67-66-3	1	U	1	0.85
10949	Chloromethane	74-87-3	2	U	2	0.85
10949	2-Chlorotoluene	95-49-8	1	U	1	0.85
10949	4-Chlorotoluene	106-43-4	1	U	1	0.85
10949	Cyclohexane	110-82-7	1	U	1	0.85
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.85
10949	Dibromochloromethane	124-48-1	1	U	1	0.85
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.85
10949	Dibromomethane	74-95-3	1	U	1	0.85
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.85
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.85
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.85
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.85
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.85
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.85
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.85
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.85
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.85
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.85
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.85
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.85
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.85
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.85
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.85
10949	Ethylbenzene	100-41-4	1	U	1	0.85
10949	Freon 113	76-13-1	2	U	2	0.85
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.85
10949	2-Hexanone	591-78-6	3	U	3	0.85
10949	Isopropylbenzene	98-82-8	1	U	1	0.85
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.85
10949	Methyl Acetate	79-20-9	2	U	2	0.85
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.85
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.85
10949	Methylcyclohexane	108-87-2	1	U	1	0.85
10949	Methylene Chloride	75-09-2	2	U	2	0.85
10949	Naphthalene	91-20-3	1	U	1	0.85

Sample Description: AOD-SS02-0810-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500542
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 09:40 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

AOD23 SDG#: DHR10-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.85
10949	Styrene	100-42-5	1	U	1	0.85
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.85
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.85
10949	Tetrachloroethene	127-18-4	1	U	1	0.85
10949	Toluene	108-88-3	1	U	1	0.85
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.85
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.85
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.85
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.85
10949	Trichloroethene	79-01-6	1	U	1	0.85
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.85
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.85
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.85
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.85
10949	Vinyl Acetate	108-05-4	2	U	2	0.85
10949	Vinyl Chloride	75-01-4	1	U	1	0.85
10949	m+p-Xylene	179601-23-1	1	U	1	0.85
10949	o-Xylene	95-47-6	1	U	1	0.85

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 4-methyl-2-pentanone.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	20	U	20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	79	U	79	1
10727	Di-n-butylphthalate	84-74-2	79	U	79	1
10727	Carbazole	86-74-8	20	U	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	8	U	8	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	20	U	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1

Sample Description: AOD-SS02-0810-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500542
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 09:40 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

AOD23 SDG#: DHR10-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Diethylphthalate	84-66-2	79	U	79	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	79	U	79	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1
10727	2,4-Dinitrophenol	51-28-5	400	U	400	1
10727	2,4-Dinitrotoluene	121-14-2	79	U	79	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	79	U	79	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	40	U	40	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	79	U	79	1
10727	4-Nitroaniline	100-01-6	79	U	79	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	79	U	79	1
10727	Pentachlorophenol	87-86-5	40	U	40	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	20	U	20	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	78.8		0.0206	1
06949	Cadmium	7440-43-9	1.04		0.0229	1
06951	Chromium	7440-47-3	16.1		0.160	1
06955	Lead	7439-92-1	9.83		0.252	1
06936	Selenium	7782-49-2	0.778	U	0.778	1
06966	Silver	7440-22-4	0.0950	U	0.0950	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	13.9		0.0943	2

Sample Description: AOD-SS02-0810-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500542
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 09:40 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

AOD23 SDG#: DHR10-03

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0177 J	0.0079	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	16.0	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	Q113562AA	12/23/2011 04:21	Sara E Johnson	0.85
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134926443	12/15/2011 12:14	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134926443	12/15/2011 12:14	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134926443	12/15/2011 12:14	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11350SLE026	12/19/2011 12:36	Matthew S Woods	1
10809	BNA Soil Microwave	SW-846 3546	1	11350SLE026	12/17/2011 11:30	Sally L Appleyard	1
06946	Barium	SW-846 6010B	1	113505708003	12/20/2011 21:58	John W Yanzuk II	1
06949	Cadmium	SW-846 6010B	1	113505708003	12/22/2011 20:56	John P Hook	1
06951	Chromium	SW-846 6010B	1	113505708003	12/20/2011 21:58	John W Yanzuk II	1
06955	Lead	SW-846 6010B	1	113505708003	12/22/2011 20:56	John P Hook	1
06936	Selenium	SW-846 6010B	1	113505708003	12/20/2011 21:58	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	113505708003	12/20/2011 21:58	John W Yanzuk II	1
06125	Arsenic	SW-846 6020	1	113501026002A	12/22/2011 15:47	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113505711003	12/19/2011 09:03	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113505708003	12/18/2011 19:56	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113501026002	12/18/2011 19:58	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113505711003	12/18/2011 23:10	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11350820002A	12/16/2011 18:29	Scott W Freisher	1

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Analysis Report

Sample Description: AOD-SS02-1315-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500543
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 09:45 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

AOD24 SDG#: DHR10-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	24		7	0.99
10949	Benzene	71-43-2	0.5	U	0.5	0.99
10949	Bromobenzene	108-86-1	1	U	1	0.99
10949	Bromochloromethane	74-97-5	1	U	1	0.99
10949	Bromodichloromethane	75-27-4	1	U	1	0.99
10949	Bromoform	75-25-2	1	U	1	0.99
10949	Bromomethane	74-83-9	2	U	2	0.99
10949	2-Butanone	78-93-3	4	U	4	0.99
10949	n-Butylbenzene	104-51-8	1	U	1	0.99
10949	sec-Butylbenzene	135-98-8	1	U	1	0.99
10949	tert-Butylbenzene	98-06-6	1	U	1	0.99
10949	Carbon Disulfide	75-15-0	1	U	1	0.99
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.99
10949	Chlorobenzene	108-90-7	1	U	1	0.99
10949	Chloroethane	75-00-3	2	U	2	0.99
10949	Chloroform	67-66-3	1	U	1	0.99
10949	Chloromethane	74-87-3	2	U	2	0.99
10949	2-Chlorotoluene	95-49-8	1	U	1	0.99
10949	4-Chlorotoluene	106-43-4	1	U	1	0.99
10949	Cyclohexane	110-82-7	1	U	1	0.99
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.99
10949	Dibromochloromethane	124-48-1	1	U	1	0.99
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.99
10949	Dibromomethane	74-95-3	1	U	1	0.99
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.99
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.99
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.99
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.99
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.99
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.99
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.99
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.99
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.99
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.99
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.99
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.99
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.99
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.99
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.99
10949	Ethylbenzene	100-41-4	1	U	1	0.99
10949	Freon 113	76-13-1	2	U	2	0.99
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.99
10949	2-Hexanone	591-78-6	3	U	3	0.99
10949	Isopropylbenzene	98-82-8	1	U	1	0.99
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.99
10949	Methyl Acetate	79-20-9	2	U	2	0.99
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.99
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.99
10949	Methylcyclohexane	108-87-2	1	U	1	0.99
10949	Methylene Chloride	75-09-2	2	U	2	0.99
10949	Naphthalene	91-20-3	1	U	1	0.99

Sample Description: AOD-SS02-1315-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500543
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 09:45 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

AOD24 SDG#: DHR10-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.99
10949	Styrene	100-42-5	1	U	1	0.99
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.99
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.99
10949	Tetrachloroethene	127-18-4	1	U	1	0.99
10949	Toluene	108-88-3	1	U	1	0.99
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.99
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.99
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.99
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.99
10949	Trichloroethene	79-01-6	1	U	1	0.99
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.99
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.99
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.99
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.99
10949	Vinyl Acetate	108-05-4	2	U	2	0.99
10949	Vinyl Chloride	75-01-4	1	U	1	0.99
10949	m+p-Xylene	179601-23-1	1	U	1	0.99
10949	o-Xylene	95-47-6	1	U	1	0.99

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 4-methyl-2-pentanone.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	180	U	180	1
10727	1,1'-Biphenyl	92-52-4	18	U	18	1
10727	4-Bromophenyl-phenylether	101-55-3	18	U	18	1
10727	Butylbenzylphthalate	85-68-7	70	U	70	1
10727	Di-n-butylphthalate	84-74-2	70	U	70	1
10727	Carbazole	86-74-8	18	U	18	1
10727	4-Chloro-3-methylphenol	59-50-7	18	U	18	1
10727	4-Chloroaniline	106-47-8	18	U	18	1
10727	bis(2-Chloroethoxy)methane	111-91-1	18	U	18	1
10727	bis(2-Chloroethyl)ether	111-44-4	18	U	18	1
10727	2-Chloronaphthalene	91-58-7	7	U	7	1
10727	2-Chlorophenol	95-57-8	18	U	18	1
10727	4-Chlorophenyl-phenylether	7005-72-3	18	U	18	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	18	U	18	1
10727	3,3'-Dichlorobenzidine	91-94-1	110	U	110	1
10727	2,4-Dichlorophenol	120-83-2	18	U	18	1

Sample Description: AOD-SS02-1315-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500543
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 09:45 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

AOD24 SDG#: DHR10-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Diethylphthalate	84-66-2	70	U	70	1
10727	2,4-Dimethylphenol	105-67-9	18	U	18	1
10727	Dimethylphthalate	131-11-3	70	U	70	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	180	U	180	1
10727	2,4-Dinitrophenol	51-28-5	350	U	350	1
10727	2,4-Dinitrotoluene	121-14-2	70	U	70	1
10727	2,6-Dinitrotoluene	606-20-2	18	U	18	1
10727	1,4-Dioxane	123-91-1	110	U	110	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	70	U	70	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	180	U	180	1
10727	Hexachloroethane	67-72-1	35	U	35	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	18	U	18	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	18	U	18	1
10727	4-Methylphenol	106-44-5	18	U	18	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	18	U	18	1
10727	3-Nitroaniline	99-09-2	70	U	70	1
10727	4-Nitroaniline	100-01-6	70	U	70	1
10727	Nitrobenzene	98-95-3	18	U	18	1
10727	2-Nitrophenol	88-75-5	18	U	18	1
10727	4-Nitrophenol	100-02-7	180	U	180	1
10727	N-Nitroso-di-n-propylamine	621-64-7	18	U	18	1
10727	N-Nitrosodiphenylamine	86-30-6	18	U	18	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	70	U	70	1
10727	Pentachlorophenol	87-86-5	35	U	35	1
10727	Phenanthrene	85-01-8	9	J	4	1
10727	Phenol	108-95-2	18	U	18	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	18	U	18	1
10727	2,4,6-Trichlorophenol	88-06-2	18	U	18	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	75.1		0.0186	1
06949	Cadmium	7440-43-9	0.509	J	0.0207	1
06951	Chromium	7440-47-3	6.30		0.145	1
06955	Lead	7439-92-1	3.92		0.228	1
06936	Selenium	7782-49-2	0.704	U	0.704	1
06966	Silver	7440-22-4	0.0859	U	0.0859	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	8.67		0.0820	2

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Analysis Report

Sample Description: AOD-SS02-1315-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500543
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 09:45 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

AOD24 SDG#: DHR10-04

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0069 U	0.0069	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	5.3	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	Q113562AA	12/23/2011 09:18	Sara E Johnson	0.99
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134926443	12/15/2011 12:16	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134926443	12/15/2011 12:16	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134926443	12/15/2011 12:15	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11350SLE026	12/19/2011 13:01	Matthew S Woods	1
10809	BNA Soil Microwave	SW-846 3546	1	11350SLE026	12/17/2011 11:30	Sally L Appleyard	1
06946	Barium	SW-846 6010B	1	113505708003	12/20/2011 22:02	John W Yanzuk II	1
06949	Cadmium	SW-846 6010B	1	113505708003	12/22/2011 21:00	John P Hook	1
06951	Chromium	SW-846 6010B	1	113505708003	12/20/2011 22:02	John W Yanzuk II	1
06955	Lead	SW-846 6010B	1	113505708003	12/22/2011 21:00	John P Hook	1
06936	Selenium	SW-846 6010B	1	113505708003	12/20/2011 22:02	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	113505708003	12/20/2011 22:02	John W Yanzuk II	1
06125	Arsenic	SW-846 6020	1	113501026002A	12/22/2011 15:49	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113505711003	12/19/2011 09:04	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113505708003	12/18/2011 19:56	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113501026002	12/18/2011 19:58	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113505711003	12/18/2011 23:10	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11350820002A	12/16/2011 18:29	Scott W Freisher	1

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Analysis Report

Sample Description: AOD-SS01-0002-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500544
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 10:10 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

AOD11 SDG#: DHR10-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	40		8	1.04
10949	Benzene	71-43-2	1	J	0.5	1.04
10949	Bromobenzene	108-86-1	1	U	1	1.04
10949	Bromochloromethane	74-97-5	1	U	1	1.04
10949	Bromodichloromethane	75-27-4	1	U	1	1.04
10949	Bromoform	75-25-2	1	U	1	1.04
10949	Bromomethane	74-83-9	2	U	2	1.04
10949	2-Butanone	78-93-3	4	U	4	1.04
10949	n-Butylbenzene	104-51-8	1	U	1	1.04
10949	sec-Butylbenzene	135-98-8	1	U	1	1.04
10949	tert-Butylbenzene	98-06-6	1	U	1	1.04
10949	Carbon Disulfide	75-15-0	2	J	1	1.04
10949	Carbon Tetrachloride	56-23-5	1	U	1	1.04
10949	Chlorobenzene	108-90-7	1	U	1	1.04
10949	Chloroethane	75-00-3	2	U	2	1.04
10949	Chloroform	67-66-3	1	U	1	1.04
10949	Chloromethane	74-87-3	2	U	2	1.04
10949	2-Chlorotoluene	95-49-8	1	U	1	1.04
10949	4-Chlorotoluene	106-43-4	1	U	1	1.04
10949	Cyclohexane	110-82-7	4	J	1	1.04
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	1.04
10949	Dibromochloromethane	124-48-1	1	U	1	1.04
10949	1,2-Dibromoethane	106-93-4	1	U	1	1.04
10949	Dibromomethane	74-95-3	1	U	1	1.04
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	1.04
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	1.04
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	1.04
10949	Dichlorodifluoromethane	75-71-8	2	U	2	1.04
10949	1,1-Dichloroethane	75-34-3	1	U	1	1.04
10949	1,2-Dichloroethane	107-06-2	1	U	1	1.04
10949	1,1-Dichloroethene	75-35-4	1	U	1	1.04
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	1.04
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	1.04
10949	1,2-Dichloropropane	78-87-5	1	U	1	1.04
10949	1,3-Dichloropropane	142-28-9	1	U	1	1.04
10949	2,2-Dichloropropane	594-20-7	1	U	1	1.04
10949	1,1-Dichloropropene	563-58-6	1	U	1	1.04
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	1.04
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	1.04
10949	Ethylbenzene	100-41-4	2	J	1	1.04
10949	Freon 113	76-13-1	2	U	2	1.04
10949	Hexachlorobutadiene	87-68-3	2	U	2	1.04
10949	2-Hexanone	591-78-6	3	U	3	1.04
10949	Isopropylbenzene	98-82-8	1	U	1	1.04
10949	p-Isopropyltoluene	99-87-6	1	U	1	1.04
10949	Methyl Acetate	79-20-9	2	U	2	1.04
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	1.04
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	1.04
10949	Methylcyclohexane	108-87-2	5	J	1	1.04
10949	Methylene Chloride	75-09-2	2	U	2	1.04
10949	Naphthalene	91-20-3	1	U	1	1.04

Sample Description: AOD-SS01-0002-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500544
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 10:10 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

AOD11 SDG#: DHR10-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	1.04
10949	Styrene	100-42-5	1	U	1	1.04
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	1.04
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	1.04
10949	Tetrachloroethene	127-18-4	1	U	1	1.04
10949	Toluene	108-88-3	3	J	1	1.04
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	1.04
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	1.04
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	1.04
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	1.04
10949	Trichloroethene	79-01-6	1	U	1	1.04
10949	Trichlorofluoromethane	75-69-4	2	U	2	1.04
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	1.04
10949	1,2,4-Trimethylbenzene	95-63-6	1	J	1	1.04
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	1.04
10949	Vinyl Acetate	108-05-4	2	U	2	1.04
10949	Vinyl Chloride	75-01-4	1	U	1	1.04
10949	m+p-Xylene	179601-23-1	2	J	1	1.04
10949	o-Xylene	95-47-6	1	U	1	1.04

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 4-methyl-2-pentanone.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	180	U	180	1
10727	1,1'-Biphenyl	92-52-4	18	U	18	1
10727	4-Bromophenyl-phenylether	101-55-3	18	U	18	1
10727	Butylbenzylphthalate	85-68-7	70	U	70	1
10727	Di-n-butylphthalate	84-74-2	70	U	70	1
10727	Carbazole	86-74-8	18	U	18	1
10727	4-Chloro-3-methylphenol	59-50-7	18	U	18	1
10727	4-Chloroaniline	106-47-8	18	U	18	1
10727	bis(2-Chloroethoxy)methane	111-91-1	18	U	18	1
10727	bis(2-Chloroethyl)ether	111-44-4	18	U	18	1
10727	2-Chloronaphthalene	91-58-7	7	U	7	1
10727	2-Chlorophenol	95-57-8	18	U	18	1
10727	4-Chlorophenyl-phenylether	7005-72-3	18	U	18	1
10727	Chrysene	218-01-9	4	J	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	18	U	18	1
10727	3,3'-Dichlorobenzidine	91-94-1	110	U	110	1
10727	2,4-Dichlorophenol	120-83-2	18	U	18	1

Sample Description: AOD-SS01-0002-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500544
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 10:10 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

AOD11 SDG#: DHR10-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Diethylphthalate	84-66-2	70	U	70	1
10727	2,4-Dimethylphenol	105-67-9	18	U	18	1
10727	Dimethylphthalate	131-11-3	70	U	70	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	180	U	180	1
10727	2,4-Dinitrophenol	51-28-5	350	U	350	1
10727	2,4-Dinitrotoluene	121-14-2	70	U	70	1
10727	2,6-Dinitrotoluene	606-20-2	18	U	18	1
10727	1,4-Dioxane	123-91-1	110	U	110	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	70	U	70	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	180	U	180	1
10727	Hexachloroethane	67-72-1	35	U	35	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	18	U	18	1
10727	2-Methylnaphthalene	91-57-6	19		4	1
10727	2-Methylphenol	95-48-7	18	U	18	1
10727	4-Methylphenol	106-44-5	18	U	18	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	18	U	18	1
10727	3-Nitroaniline	99-09-2	70	U	70	1
10727	4-Nitroaniline	100-01-6	70	U	70	1
10727	Nitrobenzene	98-95-3	18	U	18	1
10727	2-Nitrophenol	88-75-5	18	U	18	1
10727	4-Nitrophenol	100-02-7	180	U	180	1
10727	N-Nitroso-di-n-propylamine	621-64-7	18	U	18	1
10727	N-Nitrosodiphenylamine	86-30-6	18	U	18	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	70	U	70	1
10727	Pentachlorophenol	87-86-5	35	U	35	1
10727	Phenanthrene	85-01-8	16	J	4	1
10727	Phenol	108-95-2	18	U	18	1
10727	Pyrene	129-00-0	4	J	4	1
10727	2,4,5-Trichlorophenol	95-95-4	18	U	18	1
10727	2,4,6-Trichlorophenol	88-06-2	18	U	18	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	27.6		0.0184	1
06949	Cadmium	7440-43-9	0.537		0.0205	1
06951	Chromium	7440-47-3	5.69		0.143	1
06955	Lead	7439-92-1	3.45		0.225	1
06936	Selenium	7782-49-2	0.696	U	0.696	1
06966	Silver	7440-22-4	0.0849	U	0.0849	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	7.39		0.0835	2

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Analysis Report

Sample Description: AOD-SS01-0002-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500544
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 10:10 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

AOD11 SDG#: DHR10-05

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0071 U	0.0071	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	5.1	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	Q113562AA	12/23/2011 04:44	Sara E Johnson	1.04
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134926443	12/15/2011 12:18	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134926443	12/15/2011 12:18	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134926443	12/15/2011 12:17	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11350SLE026	12/19/2011 13:26	Matthew S Woods	1
10809	BNA Soil Microwave	SW-846 3546	1	11350SLE026	12/17/2011 11:30	Sally L Appleyard	1
06946	Barium	SW-846 6010B	1	113505708003	12/20/2011 22:06	John W Yanzuk II	1
06949	Cadmium	SW-846 6010B	1	113505708003	12/22/2011 21:04	John P Hook	1
06951	Chromium	SW-846 6010B	1	113505708003	12/20/2011 22:06	John W Yanzuk II	1
06955	Lead	SW-846 6010B	1	113505708003	12/22/2011 21:04	John P Hook	1
06936	Selenium	SW-846 6010B	1	113505708003	12/20/2011 22:06	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	113505708003	12/20/2011 22:06	John W Yanzuk II	1
06125	Arsenic	SW-846 6020	1	113501026002A	12/22/2011 15:50	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113505711003	12/19/2011 09:05	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113505708003	12/18/2011 19:56	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113501026002	12/18/2011 19:58	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113505711003	12/18/2011 23:10	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11350820002A	12/16/2011 18:29	Scott W Freisher	1

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Analysis Report

Sample Description: AOD-SS01-0305-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500545
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 10:15 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

AOD12 SDG#: DHR10-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	52		8	1.05
10949	Benzene	71-43-2	0.6	U	0.6	1.05
10949	Bromobenzene	108-86-1	1	U	1	1.05
10949	Bromochloromethane	74-97-5	1	U	1	1.05
10949	Bromodichloromethane	75-27-4	1	U	1	1.05
10949	Bromoform	75-25-2	1	U	1	1.05
10949	Bromomethane	74-83-9	2	U	2	1.05
10949	2-Butanone	78-93-3	4	U	4	1.05
10949	n-Butylbenzene	104-51-8	1	U	1	1.05
10949	sec-Butylbenzene	135-98-8	1	U	1	1.05
10949	tert-Butylbenzene	98-06-6	1	U	1	1.05
10949	Carbon Disulfide	75-15-0	1	U	1	1.05
10949	Carbon Tetrachloride	56-23-5	1	U	1	1.05
10949	Chlorobenzene	108-90-7	1	U	1	1.05
10949	Chloroethane	75-00-3	2	U	2	1.05
10949	Chloroform	67-66-3	1	U	1	1.05
10949	Chloromethane	74-87-3	2	U	2	1.05
10949	2-Chlorotoluene	95-49-8	1	U	1	1.05
10949	4-Chlorotoluene	106-43-4	1	U	1	1.05
10949	Cyclohexane	110-82-7	1	U	1	1.05
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	1.05
10949	Dibromochloromethane	124-48-1	1	U	1	1.05
10949	1,2-Dibromoethane	106-93-4	1	U	1	1.05
10949	Dibromomethane	74-95-3	1	U	1	1.05
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	1.05
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	1.05
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	1.05
10949	Dichlorodifluoromethane	75-71-8	2	U	2	1.05
10949	1,1-Dichloroethane	75-34-3	1	U	1	1.05
10949	1,2-Dichloroethane	107-06-2	1	U	1	1.05
10949	1,1-Dichloroethene	75-35-4	1	U	1	1.05
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	1.05
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	1.05
10949	1,2-Dichloropropane	78-87-5	1	U	1	1.05
10949	1,3-Dichloropropane	142-28-9	1	U	1	1.05
10949	2,2-Dichloropropane	594-20-7	1	U	1	1.05
10949	1,1-Dichloropropene	563-58-6	1	U	1	1.05
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	1.05
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	1.05
10949	Ethylbenzene	100-41-4	1	U	1	1.05
10949	Freon 113	76-13-1	2	U	2	1.05
10949	Hexachlorobutadiene	87-68-3	2	U	2	1.05
10949	2-Hexanone	591-78-6	3	U	3	1.05
10949	Isopropylbenzene	98-82-8	1	U	1	1.05
10949	p-Isopropyltoluene	99-87-6	1	U	1	1.05
10949	Methyl Acetate	79-20-9	2	U	2	1.05
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.6	U	0.6	1.05
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	1.05
10949	Methylcyclohexane	108-87-2	1	U	1	1.05
10949	Methylene Chloride	75-09-2	2	U	2	1.05
10949	Naphthalene	91-20-3	1	U	1	1.05

Sample Description: AOD-SS01-0305-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500545
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 10:15 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

AOD12 SDG#: DHR10-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	1.05
10949	Styrene	100-42-5	1	U	1	1.05
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	1.05
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	1.05
10949	Tetrachloroethene	127-18-4	1	U	1	1.05
10949	Toluene	108-88-3	1	U	1	1.05
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	1.05
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	1.05
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	1.05
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	1.05
10949	Trichloroethene	79-01-6	1	U	1	1.05
10949	Trichlorofluoromethane	75-69-4	2	U	2	1.05
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	1.05
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	1.05
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	1.05
10949	Vinyl Acetate	108-05-4	2	U	2	1.05
10949	Vinyl Chloride	75-01-4	1	U	1	1.05
10949	m+p-Xylene	179601-23-1	1	U	1	1.05
10949	o-Xylene	95-47-6	1	U	1	1.05

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 4-methyl-2-pentanone.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	180	U	180	1
10727	1,1'-Biphenyl	92-52-4	18	U	18	1
10727	4-Bromophenyl-phenylether	101-55-3	18	U	18	1
10727	Butylbenzylphthalate	85-68-7	71	U	71	1
10727	Di-n-butylphthalate	84-74-2	71	U	71	1
10727	Carbazole	86-74-8	18	U	18	1
10727	4-Chloro-3-methylphenol	59-50-7	18	U	18	1
10727	4-Chloroaniline	106-47-8	18	U	18	1
10727	bis(2-Chloroethoxy)methane	111-91-1	18	U	18	1
10727	bis(2-Chloroethyl)ether	111-44-4	18	U	18	1
10727	2-Chloronaphthalene	91-58-7	7	U	7	1
10727	2-Chlorophenol	95-57-8	18	U	18	1
10727	4-Chlorophenyl-phenylether	7005-72-3	18	U	18	1
10727	Chrysene	218-01-9	7	J	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	18	U	18	1
10727	3,3'-Dichlorobenzidine	91-94-1	110	U	110	1
10727	2,4-Dichlorophenol	120-83-2	18	U	18	1

Sample Description: AOD-SS01-0305-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500545
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 10:15 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

AOD12 SDG#: DHR10-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Diethylphthalate	84-66-2	71	U	71	1
10727	2,4-Dimethylphenol	105-67-9	18	U	18	1
10727	Dimethylphthalate	131-11-3	71	U	71	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	180	U	180	1
10727	2,4-Dinitrophenol	51-28-5	350	U	350	1
10727	2,4-Dinitrotoluene	121-14-2	71	U	71	1
10727	2,6-Dinitrotoluene	606-20-2	18	U	18	1
10727	1,4-Dioxane	123-91-1	110	U	110	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	71	U	71	1
10727	Fluoranthene	206-44-0	4	J	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	180	U	180	1
10727	Hexachloroethane	67-72-1	35	U	35	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	18	U	18	1
10727	2-Methylnaphthalene	91-57-6	20		4	1
10727	2-Methylphenol	95-48-7	18	U	18	1
10727	4-Methylphenol	106-44-5	18	U	18	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	18	U	18	1
10727	3-Nitroaniline	99-09-2	71	U	71	1
10727	4-Nitroaniline	100-01-6	71	U	71	1
10727	Nitrobenzene	98-95-3	18	U	18	1
10727	2-Nitrophenol	88-75-5	18	U	18	1
10727	4-Nitrophenol	100-02-7	180	U	180	1
10727	N-Nitroso-di-n-propylamine	621-64-7	18	U	18	1
10727	N-Nitrosodiphenylamine	86-30-6	18	U	18	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	71	U	71	1
10727	Pentachlorophenol	87-86-5	35	U	35	1
10727	Phenanthrene	85-01-8	37		4	1
10727	Phenol	108-95-2	18	U	18	1
10727	Pyrene	129-00-0	5	J	4	1
10727	2,4,5-Trichlorophenol	95-95-4	18	U	18	1
10727	2,4,6-Trichlorophenol	88-06-2	18	U	18	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	19.3		0.0184	1
06949	Cadmium	7440-43-9	0.418	J	0.0204	1
06951	Chromium	7440-47-3	4.87		0.143	1
06955	Lead	7439-92-1	2.52		0.224	1
06936	Selenium	7782-49-2	0.693	U	0.693	1
06966	Silver	7440-22-4	0.0846	U	0.0846	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	4.61		0.0840	2

Sample Description: AOD-SS01-0305-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500545
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 10:15 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

AOD12 SDG#: DHR10-06

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0074 U	0.0074	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	5.7	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	Q113562AA	12/23/2011 05:07	Sara E Johnson	1.05
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134926443	12/15/2011 12:20	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134926443	12/15/2011 12:20	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134926443	12/15/2011 12:19	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11350SLE026	12/19/2011 13:51	Matthew S Woods	1
10809	BNA Soil Microwave	SW-846 3546	1	11350SLE026	12/17/2011 11:30	Sally L Appleyard	1
06946	Barium	SW-846 6010B	1	113505708003	12/22/2011 21:08	John P Hook	1
06949	Cadmium	SW-846 6010B	1	113505708003	12/22/2011 21:08	John P Hook	1
06951	Chromium	SW-846 6010B	1	113505708003	12/22/2011 21:08	John P Hook	1
06955	Lead	SW-846 6010B	1	113505708003	12/22/2011 21:08	John P Hook	1
06936	Selenium	SW-846 6010B	1	113505708003	12/22/2011 21:08	John P Hook	1
06966	Silver	SW-846 6010B	1	113505708003	12/22/2011 21:08	John P Hook	1
06125	Arsenic	SW-846 6020	1	113501026002A	12/22/2011 15:52	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113505711003	12/19/2011 09:07	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113505708003	12/18/2011 19:56	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113501026002	12/18/2011 19:58	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113505711003	12/18/2011 23:10	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11350820002A	12/16/2011 18:29	Scott W Freisher	1

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Analysis Report

Sample Description: AOD-SS01-0810-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500546
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 10:20 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

AOD13 SDG#: DHR10-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	56		7	1
10949	Benzene	71-43-2	0.5	U	0.5	1
10949	Bromobenzene	108-86-1	1	U	1	1
10949	Bromochloromethane	74-97-5	1	U	1	1
10949	Bromodichloromethane	75-27-4	1	U	1	1
10949	Bromoform	75-25-2	1	U	1	1
10949	Bromomethane	74-83-9	2	U	2	1
10949	2-Butanone	78-93-3	4	U	4	1
10949	n-Butylbenzene	104-51-8	1	U	1	1
10949	sec-Butylbenzene	135-98-8	1	U	1	1
10949	tert-Butylbenzene	98-06-6	1	U	1	1
10949	Carbon Disulfide	75-15-0	1	U	1	1
10949	Carbon Tetrachloride	56-23-5	1	U	1	1
10949	Chlorobenzene	108-90-7	1	U	1	1
10949	Chloroethane	75-00-3	2	U	2	1
10949	Chloroform	67-66-3	1	U	1	1
10949	Chloromethane	74-87-3	2	U	2	1
10949	2-Chlorotoluene	95-49-8	1	U	1	1
10949	4-Chlorotoluene	106-43-4	1	U	1	1
10949	Cyclohexane	110-82-7	1	U	1	1
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	1
10949	Dibromochloromethane	124-48-1	1	U	1	1
10949	1,2-Dibromoethane	106-93-4	1	U	1	1
10949	Dibromomethane	74-95-3	1	U	1	1
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	1
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	1
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	1
10949	Dichlorodifluoromethane	75-71-8	2	U	2	1
10949	1,1-Dichloroethane	75-34-3	1	U	1	1
10949	1,2-Dichloroethane	107-06-2	1	U	1	1
10949	1,1-Dichloroethene	75-35-4	1	U	1	1
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	1
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	1
10949	1,2-Dichloropropane	78-87-5	1	U	1	1
10949	1,3-Dichloropropane	142-28-9	1	U	1	1
10949	2,2-Dichloropropane	594-20-7	1	U	1	1
10949	1,1-Dichloropropene	563-58-6	1	U	1	1
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	1
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	1
10949	Ethylbenzene	100-41-4	1	U	1	1
10949	Freon 113	76-13-1	2	U	2	1
10949	Hexachlorobutadiene	87-68-3	2	U	2	1
10949	2-Hexanone	591-78-6	3	U	3	1
10949	Isopropylbenzene	98-82-8	1	U	1	1
10949	p-Isopropyltoluene	99-87-6	1	U	1	1
10949	Methyl Acetate	79-20-9	2	U	2	1
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	1
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	1
10949	Methylcyclohexane	108-87-2	1	U	1	1
10949	Methylene Chloride	75-09-2	2	U	2	1
10949	Naphthalene	91-20-3	1	U	1	1

Sample Description: AOD-SS01-0810-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500546
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 10:20 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

AOD13 SDG#: DHR10-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	1
10949	Styrene	100-42-5	1	U	1	1
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	1
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	1
10949	Tetrachloroethene	127-18-4	1	U	1	1
10949	Toluene	108-88-3	1	U	1	1
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	1
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	1
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	1
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	1
10949	Trichloroethene	79-01-6	1	U	1	1
10949	Trichlorofluoromethane	75-69-4	2	U	2	1
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	1
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	1
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	1
10949	Vinyl Acetate	108-05-4	2	U	2	1
10949	Vinyl Chloride	75-01-4	1	U	1	1
10949	m+p-Xylene	179601-23-1	1	U	1	1
10949	o-Xylene	95-47-6	1	U	1	1

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 4-methyl-2-pentanone.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	J	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	180	U	180	1
10727	1,1'-Biphenyl	92-52-4	18	U	18	1
10727	4-Bromophenyl-phenylether	101-55-3	18	U	18	1
10727	Butylbenzylphthalate	85-68-7	71	U	71	1
10727	Di-n-butylphthalate	84-74-2	71	U	71	1
10727	Carbazole	86-74-8	18	U	18	1
10727	4-Chloro-3-methylphenol	59-50-7	18	U	18	1
10727	4-Chloroaniline	106-47-8	18	U	18	1
10727	bis(2-Chloroethoxy)methane	111-91-1	18	U	18	1
10727	bis(2-Chloroethyl)ether	111-44-4	18	U	18	1
10727	2-Chloronaphthalene	91-58-7	7	U	7	1
10727	2-Chlorophenol	95-57-8	18	U	18	1
10727	4-Chlorophenyl-phenylether	7005-72-3	18	U	18	1
10727	Chrysene	218-01-9	5	J	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	18	U	18	1
10727	3,3'-Dichlorobenzidine	91-94-1	110	U	110	1
10727	2,4-Dichlorophenol	120-83-2	18	U	18	1

Sample Description: AOD-SS01-0810-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500546
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 10:20 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

AOD13 SDG#: DHR10-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Diethylphthalate	84-66-2	71	U	71	1
10727	2,4-Dimethylphenol	105-67-9	18	U	18	1
10727	Dimethylphthalate	131-11-3	71	U	71	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	180	U	180	1
10727	2,4-Dinitrophenol	51-28-5	360	U	360	1
10727	2,4-Dinitrotoluene	121-14-2	71	U	71	1
10727	2,6-Dinitrotoluene	606-20-2	18	U	18	1
10727	1,4-Dioxane	123-91-1	110	U	110	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	71	U	71	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	180	U	180	1
10727	Hexachloroethane	67-72-1	36	U	36	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	18	U	18	1
10727	2-Methylnaphthalene	91-57-6	12	J	4	1
10727	2-Methylphenol	95-48-7	18	U	18	1
10727	4-Methylphenol	106-44-5	18	U	18	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	18	U	18	1
10727	3-Nitroaniline	99-09-2	71	U	71	1
10727	4-Nitroaniline	100-01-6	71	U	71	1
10727	Nitrobenzene	98-95-3	18	U	18	1
10727	2-Nitrophenol	88-75-5	18	U	18	1
10727	4-Nitrophenol	100-02-7	180	U	180	1
10727	N-Nitroso-di-n-propylamine	621-64-7	18	U	18	1
10727	N-Nitrosodiphenylamine	86-30-6	18	U	18	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	71	U	71	1
10727	Pentachlorophenol	87-86-5	36	U	36	1
10727	Phenanthrene	85-01-8	16	J	4	1
10727	Phenol	108-95-2	18	U	18	1
10727	Pyrene	129-00-0	4	J	4	1
10727	2,4,5-Trichlorophenol	95-95-4	18	U	18	1
10727	2,4,6-Trichlorophenol	88-06-2	18	U	18	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	20.6		0.0193	1
06949	Cadmium	7440-43-9	0.340	J	0.0214	1
06951	Chromium	7440-47-3	3.74		0.150	1
06955	Lead	7439-92-1	2.59		0.235	1
06936	Selenium	7782-49-2	0.727	U	0.727	1
06966	Silver	7440-22-4	0.0888	U	0.0888	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	5.39		0.0856	2

Sample Description: AOD-SS01-0810-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500546
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 10:20 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

AOD13 SDG#: DHR10-07

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0074 U	0.0074	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	6.5	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	Q113562AA	12/23/2011 05:30	Sara E Johnson	1
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134926443	12/15/2011 12:22	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134926443	12/15/2011 12:22	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134926443	12/15/2011 12:21	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11350SLE026	12/19/2011 14:16	Matthew S Woods	1
10809	BNA Soil Microwave	SW-846 3546	1	11350SLE026	12/17/2011 11:30	Sally L Appleyard	1
06946	Barium	SW-846 6010B	1	113505708003	12/20/2011 22:13	John W Yanzuk II	1
06949	Cadmium	SW-846 6010B	1	113505708003	12/22/2011 21:20	John P Hook	1
06951	Chromium	SW-846 6010B	1	113505708003	12/20/2011 22:13	John W Yanzuk II	1
06955	Lead	SW-846 6010B	1	113505708003	12/22/2011 21:20	John P Hook	1
06936	Selenium	SW-846 6010B	1	113505708003	12/20/2011 22:13	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	113505708003	12/20/2011 22:13	John W Yanzuk II	1
06125	Arsenic	SW-846 6020	1	113501026002A	12/22/2011 15:54	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113505711003	12/19/2011 09:08	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113505708003	12/18/2011 19:56	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113501026002	12/18/2011 19:58	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113505711003	12/18/2011 23:10	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11350820002A	12/16/2011 18:29	Scott W Freisher	1

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Analysis Report

Sample Description: AOD-SS01-2123-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500547
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 10:30 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

AOD14 SDG#: DHR10-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	20	J	7	0.98
10949	Benzene	71-43-2	0.5	U	0.5	0.98
10949	Bromobenzene	108-86-1	1	U	1	0.98
10949	Bromochloromethane	74-97-5	1	U	1	0.98
10949	Bromodichloromethane	75-27-4	1	U	1	0.98
10949	Bromoform	75-25-2	1	U	1	0.98
10949	Bromomethane	74-83-9	2	U	2	0.98
10949	2-Butanone	78-93-3	4	U	4	0.98
10949	n-Butylbenzene	104-51-8	1	U	1	0.98
10949	sec-Butylbenzene	135-98-8	1	U	1	0.98
10949	tert-Butylbenzene	98-06-6	1	U	1	0.98
10949	Carbon Disulfide	75-15-0	2	J	1	0.98
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.98
10949	Chlorobenzene	108-90-7	1	U	1	0.98
10949	Chloroethane	75-00-3	2	U	2	0.98
10949	Chloroform	67-66-3	1	U	1	0.98
10949	Chloromethane	74-87-3	2	U	2	0.98
10949	2-Chlorotoluene	95-49-8	1	U	1	0.98
10949	4-Chlorotoluene	106-43-4	1	U	1	0.98
10949	Cyclohexane	110-82-7	1	U	1	0.98
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.98
10949	Dibromochloromethane	124-48-1	1	U	1	0.98
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.98
10949	Dibromomethane	74-95-3	1	U	1	0.98
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.98
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.98
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.98
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.98
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.98
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.98
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.98
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.98
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.98
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.98
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.98
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.98
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.98
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.98
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.98
10949	Ethylbenzene	100-41-4	1	J	1	0.98
10949	Freon 113	76-13-1	2	U	2	0.98
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.98
10949	2-Hexanone	591-78-6	3	U	3	0.98
10949	Isopropylbenzene	98-82-8	1	U	1	0.98
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.98
10949	Methyl Acetate	79-20-9	2	U	2	0.98
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.98
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.98
10949	Methylcyclohexane	108-87-2	1	U	1	0.98
10949	Methylene Chloride	75-09-2	2	U	2	0.98
10949	Naphthalene	91-20-3	1	U	1	0.98

Sample Description: AOD-SS01-2123-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500547
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 10:30 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

AOD14 SDG#: DHR10-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.98
10949	Styrene	100-42-5	1	U	1	0.98
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.98
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.98
10949	Tetrachloroethene	127-18-4	1	U	1	0.98
10949	Toluene	108-88-3	1	U	1	0.98
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.98
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.98
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.98
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.98
10949	Trichloroethene	79-01-6	1	U	1	0.98
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.98
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.98
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.98
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.98
10949	Vinyl Acetate	108-05-4	2	U	2	0.98
10949	Vinyl Chloride	75-01-4	1	U	1	0.98
10949	m+p-Xylene	179601-23-1	1	U	1	0.98
10949	o-Xylene	95-47-6	1	U	1	0.98

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 4-methyl-2-pentanone.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	6	J	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	180	U	180	1
10727	1,1'-Biphenyl	92-52-4	18	U	18	1
10727	4-Bromophenyl-phenylether	101-55-3	18	U	18	1
10727	Butylbenzylphthalate	85-68-7	70	U	70	1
10727	Di-n-butylphthalate	84-74-2	70	U	70	1
10727	Carbazole	86-74-8	18	U	18	1
10727	4-Chloro-3-methylphenol	59-50-7	18	U	18	1
10727	4-Chloroaniline	106-47-8	18	U	18	1
10727	bis(2-Chloroethoxy)methane	111-91-1	18	U	18	1
10727	bis(2-Chloroethyl)ether	111-44-4	18	U	18	1
10727	2-Chloronaphthalene	91-58-7	7	U	7	1
10727	2-Chlorophenol	95-57-8	18	U	18	1
10727	4-Chlorophenyl-phenylether	7005-72-3	18	U	18	1
10727	Chrysene	218-01-9	11	J	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	18	U	18	1
10727	3,3'-Dichlorobenzidine	91-94-1	110	U	110	1
10727	2,4-Dichlorophenol	120-83-2	18	U	18	1

Sample Description: AOD-SS01-2123-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500547
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 10:30 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

AOD14 SDG#: DHR10-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Diethylphthalate	84-66-2	70	U	70	1
10727	2,4-Dimethylphenol	105-67-9	18	U	18	1
10727	Dimethylphthalate	131-11-3	70	U	70	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	180	U	180	1
10727	2,4-Dinitrophenol	51-28-5	350	U	350	1
10727	2,4-Dinitrotoluene	121-14-2	70	U	70	1
10727	2,6-Dinitrotoluene	606-20-2	18	U	18	1
10727	1,4-Dioxane	123-91-1	110	U	110	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	70	U	70	1
10727	Fluoranthene	206-44-0	4	J	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	180	U	180	1
10727	Hexachloroethane	67-72-1	35	U	35	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	18	U	18	1
10727	2-Methylnaphthalene	91-57-6	8	J	4	1
10727	2-Methylphenol	95-48-7	18	U	18	1
10727	4-Methylphenol	106-44-5	18	U	18	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	18	U	18	1
10727	3-Nitroaniline	99-09-2	70	U	70	1
10727	4-Nitroaniline	100-01-6	70	U	70	1
10727	Nitrobenzene	98-95-3	18	U	18	1
10727	2-Nitrophenol	88-75-5	18	U	18	1
10727	4-Nitrophenol	100-02-7	180	U	180	1
10727	N-Nitroso-di-n-propylamine	621-64-7	18	U	18	1
10727	N-Nitrosodiphenylamine	86-30-6	18	U	18	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	70	U	70	1
10727	Pentachlorophenol	87-86-5	35	U	35	1
10727	Phenanthrene	85-01-8	44		4	1
10727	Phenol	108-95-2	18	U	18	1
10727	Pyrene	129-00-0	5	J	4	1
10727	2,4,5-Trichlorophenol	95-95-4	18	U	18	1
10727	2,4,6-Trichlorophenol	88-06-2	18	U	18	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	56.0		0.0186	1
06949	Cadmium	7440-43-9	0.497	J	0.0207	1
06951	Chromium	7440-47-3	6.17		0.145	1
06955	Lead	7439-92-1	2.85		0.228	1
06936	Selenium	7782-49-2	0.703	U	0.703	1
06966	Silver	7440-22-4	0.0858	U	0.0858	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	6.35		0.0827	2

Sample Description: AOD-SS01-2123-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500547
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 10:30 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

AOD14 SDG#: DHR10-08

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0070 U	0.0070	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	5.2	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	Q113562AA	12/23/2011 09:41	Sara E Johnson	0.98
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134926443	12/15/2011 12:23	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134926443	12/15/2011 12:24	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134926443	12/15/2011 12:23	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11350SLE026	12/19/2011 14:41	Matthew S Woods	1
10809	BNA Soil Microwave	SW-846 3546	1	11350SLE026	12/17/2011 11:30	Sally L Appleyard	1
06946	Barium	SW-846 6010B	1	113505708003	12/20/2011 22:17	John W Yanzuk II	1
06949	Cadmium	SW-846 6010B	1	113505708003	12/22/2011 21:23	John P Hook	1
06951	Chromium	SW-846 6010B	1	113505708003	12/20/2011 22:17	John W Yanzuk II	1
06955	Lead	SW-846 6010B	1	113505708003	12/22/2011 21:23	John P Hook	1
06936	Selenium	SW-846 6010B	1	113505708003	12/20/2011 22:17	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	113505708003	12/20/2011 22:17	John W Yanzuk II	1
06125	Arsenic	SW-846 6020	1	113501026002A	12/22/2011 15:55	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113505711003	12/19/2011 09:09	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113505708003	12/18/2011 19:56	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113501026002	12/18/2011 19:58	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113505711003	12/18/2011 23:10	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11350820002A	12/16/2011 18:29	Scott W Freisher	1

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Analysis Report

Sample Description: S24-SS01-0002-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500548
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 12:05 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S2411 SDG#: DHR10-09

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg		ug/kg	
10949	Acetone	67-64-1	7	U	7	0.95
10949	Benzene	71-43-2	0.5	U	0.5	0.95
10949	Bromobenzene	108-86-1	1	U	1	0.95
10949	Bromochloromethane	74-97-5	1	U	1	0.95
10949	Bromodichloromethane	75-27-4	1	U	1	0.95
10949	Bromoform	75-25-2	1	U	1	0.95
10949	Bromomethane	74-83-9	2	U	2	0.95
10949	2-Butanone	78-93-3	4	U	4	0.95
10949	n-Butylbenzene	104-51-8	1	U	1	0.95
10949	sec-Butylbenzene	135-98-8	1	U	1	0.95
10949	tert-Butylbenzene	98-06-6	1	U	1	0.95
10949	Carbon Disulfide	75-15-0	7		1	0.95
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.95
10949	Chlorobenzene	108-90-7	1	U	1	0.95
10949	Chloroethane	75-00-3	2	U	2	0.95
10949	Chloroform	67-66-3	1	U	1	0.95
10949	Chloromethane	74-87-3	2	U	2	0.95
10949	2-Chlorotoluene	95-49-8	1	U	1	0.95
10949	4-Chlorotoluene	106-43-4	1	U	1	0.95
10949	Cyclohexane	110-82-7	1	U	1	0.95
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.95
10949	Dibromochloromethane	124-48-1	1	U	1	0.95
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.95
10949	Dibromomethane	74-95-3	1	U	1	0.95
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.95
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.95
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.95
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.95
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.95
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.95
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.95
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.95
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.95
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.95
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.95
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.95
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.95
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.95
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.95
10949	Ethylbenzene	100-41-4	1	U	1	0.95
10949	Freon 113	76-13-1	2	U	2	0.95
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.95
10949	2-Hexanone	591-78-6	3	U	3	0.95
10949	Isopropylbenzene	98-82-8	1	U	1	0.95
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.95
10949	Methyl Acetate	79-20-9	2	U	2	0.95
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.95
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.95
10949	Methylcyclohexane	108-87-2	1	U	1	0.95
10949	Methylene Chloride	75-09-2	2	U	2	0.95
10949	Naphthalene	91-20-3	1	U	1	0.95

Sample Description: S24-SS01-0002-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500548
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 12:05 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S2411 SDG#: DHR10-09

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.95
10949	Styrene	100-42-5	1	U	1	0.95
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.95
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.95
10949	Tetrachloroethene	127-18-4	1	U	1	0.95
10949	Toluene	108-88-3	1	U	1	0.95
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.95
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.95
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.95
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.95
10949	Trichloroethene	79-01-6	1	U	1	0.95
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.95
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.95
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.95
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.95
10949	Vinyl Acetate	108-05-4	2	U	2	0.95
10949	Vinyl Chloride	75-01-4	1	U	1	0.95
10949	m+p-Xylene	179601-23-1	1	U	1	0.95
10949	o-Xylene	95-47-6	1	U	1	0.95

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 4-methyl-2-pentanone.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	790		4	1
10727	Acenaphthylene	208-96-8	360		4	1
10727	Anthracene	120-12-7	780		4	1
10727	Benzo(a)anthracene	56-55-3	4,200		4	1
10727	Benzo(a)pyrene	50-32-8	3,700		4	1
10727	Benzo(b)fluoranthene	205-99-2	6,300	E	4	1
10727	Benzo(g,h,i)perylene	191-24-2	2,800		4	1
10727	Benzo(k)fluoranthene	207-08-9	2,400		4	1
10727	Benzyl alcohol	100-51-6	180	U	180	1
10727	1,1'-Biphenyl	92-52-4	1,300		18	1
10727	4-Bromophenyl-phenylether	101-55-3	18	U	18	1
10727	Butylbenzylphthalate	85-68-7	72	U	72	1
10727	Di-n-butylphthalate	84-74-2	72	U	72	1
10727	Carbazole	86-74-8	280		18	1
10727	4-Chloro-3-methylphenol	59-50-7	18	U	18	1
10727	4-Chloroaniline	106-47-8	18	U	18	1
10727	bis(2-Chloroethoxy)methane	111-91-1	18	U	18	1
10727	bis(2-Chloroethyl)ether	111-44-4	18	U	18	1
10727	2-Chloronaphthalene	91-58-7	8	U	8	1
10727	2-Chlorophenol	95-57-8	18	U	18	1
10727	4-Chlorophenyl-phenylether	7005-72-3	18	U	18	1
10727	Chrysene	218-01-9	4,300	E	4	1
10727	Dibenz(a,h)anthracene	53-70-3	990		4	1
10727	Dibenzofuran	132-64-9	4,900	E	18	1
10727	3,3'-Dichlorobenzidine	91-94-1	110	U	110	1
10727	2,4-Dichlorophenol	120-83-2	18	U	18	1

Sample Description: S24-SS01-0002-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500548
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 12:05 by OO

Submitted: 12/15/2011 09:30
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CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S2411 SDG#: DHR10-09

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C			**ug/kg**		**ug/kg**	
10727	Diethylphthalate	84-66-2	72	U	72	1
10727	2,4-Dimethylphenol	105-67-9	18	U	18	1
10727	Dimethylphthalate	131-11-3	72	U	72	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	180	U	180	1
10727	2,4-Dinitrophenol	51-28-5	360	U	360	1
10727	2,4-Dinitrotoluene	121-14-2	72	U	72	1
10727	2,6-Dinitrotoluene	606-20-2	18	U	18	1
10727	1,4-Dioxane	123-91-1	110	U	110	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	130	J	72	1
10727	Fluoranthene	206-44-0	9,200	E	4	1
10727	Fluorene	86-73-7	110		4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	180	U	180	1
10727	Hexachloroethane	67-72-1	36	U	36	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	2,800		4	1
10727	Isophorone	78-59-1	18	U	18	1
10727	2-Methylnaphthalene	91-57-6	3,500		4	1
10727	2-Methylphenol	95-48-7	18	U	18	1
10727	4-Methylphenol	106-44-5	18	U	18	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	18	U	18	1
10727	3-Nitroaniline	99-09-2	72	U	72	1
10727	4-Nitroaniline	100-01-6	72	U	72	1
10727	Nitrobenzene	98-95-3	18	U	18	1
10727	2-Nitrophenol	88-75-5	18	U	18	1
10727	4-Nitrophenol	100-02-7	180	U	180	1
10727	N-Nitroso-di-n-propylamine	621-64-7	18	U	18	1
10727	N-Nitrosodiphenylamine	86-30-6	18	U	18	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	72	U	72	1
10727	Pentachlorophenol	87-86-5	36	U	36	1
10727	Phenanthrene	85-01-8	4,700	E	4	1
10727	Phenol	108-95-2	65		18	1
10727	Pyrene	129-00-0	10,000	E	4	1
10727	2,4,5-Trichlorophenol	95-95-4	18	U	18	1
10727	2,4,6-Trichlorophenol	88-06-2	18	U	18	1
Trial ID: DL						
10727	Acenaphthene	83-32-9	880		36	10
10727	Acenaphthylene	208-96-8	430		36	10
10727	Anthracene	120-12-7	820		36	10
10727	Benzo(a)anthracene	56-55-3	4,200		36	10
10727	Benzo(a)pyrene	50-32-8	4,300		36	10
10727	Benzo(b)fluoranthene	205-99-2	7,400		36	10
10727	Benzo(g,h,i)perylene	191-24-2	3,100		36	10
10727	Benzo(k)fluoranthene	207-08-9	3,100		36	10
10727	Benzyl alcohol	100-51-6	1,800	U	1,800	10

Sample Description: S24-SS01-0002-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500548
LLI Group # 1281221
Account # 11372

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PO Box 241329
Denver CO 80224

S2411 SDG#: DHR10-09

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C			**ug/kg**		**ug/kg**	
10727	1,1'-Biphenyl	92-52-4	1,400		180	10
10727	4-Bromophenyl-phenylether	101-55-3	180	U	180	10
10727	Butylbenzylphthalate	85-68-7	720	U	720	10
10727	Di-n-butylphthalate	84-74-2	720	U	720	10
10727	Carbazole	86-74-8	290	J	180	10
10727	4-Chloro-3-methylphenol	59-50-7	180	U	180	10
10727	4-Chloroaniline	106-47-8	180	U	180	10
10727	bis(2-Chloroethoxy)methane	111-91-1	180	U	180	10
10727	bis(2-Chloroethyl)ether	111-44-4	180	U	180	10
10727	2-Chloronaphthalene	91-58-7	76	U	76	10
10727	2-Chlorophenol	95-57-8	180	U	180	10
10727	4-Chlorophenyl-phenylether	7005-72-3	180	U	180	10
10727	Chrysene	218-01-9	4,500		36	10
10727	Dibenz(a,h)anthracene	53-70-3	970		36	10
10727	Dibenzofuran	132-64-9	5,800		180	10
10727	3,3'-Dichlorobenzidine	91-94-1	1,100	U	1,100	10
10727	2,4-Dichlorophenol	120-83-2	180	U	180	10
10727	Diethylphthalate	84-66-2	720	U	720	10
10727	2,4-Dimethylphenol	105-67-9	180	U	180	10
10727	Dimethylphthalate	131-11-3	720	U	720	10
10727	4,6-Dinitro-2-methylphenol	534-52-1	1,800	U	1,800	10
10727	2,4-Dinitrophenol	51-28-5	3,600	U	3,600	10
10727	2,4-Dinitrotoluene	121-14-2	720	U	720	10
10727	2,6-Dinitrotoluene	606-20-2	180	U	180	10
10727	1,4-Dioxane	123-91-1	1,100	U	1,100	10
10727	bis(2-Ethylhexyl)phthalate	117-81-7	720	U	720	10
10727	Fluoranthene	206-44-0	11,000		36	10
10727	Fluorene	86-73-7	120	J	36	10
10727	Hexachlorobenzene	118-74-1	36	U	36	10
10727	Hexachlorocyclopentadiene	77-47-4	1,800	U	1,800	10
10727	Hexachloroethane	67-72-1	360	U	360	10
10727	Indeno(1,2,3-cd)pyrene	193-39-5	3,100		36	10
10727	Isophorone	78-59-1	180	U	180	10
10727	2-Methylnaphthalene	91-57-6	3,900		36	10
10727	2-Methylphenol	95-48-7	180	U	180	10
10727	4-Methylphenol	106-44-5	180	U	180	10
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	180	U	180	10
10727	3-Nitroaniline	99-09-2	720	U	720	10
10727	4-Nitroaniline	100-01-6	720	U	720	10
10727	Nitrobenzene	98-95-3	180	U	180	10
10727	2-Nitrophenol	88-75-5	180	U	180	10
10727	4-Nitrophenol	100-02-7	1,800	U	1,800	10
10727	N-Nitroso-di-n-propylamine	621-64-7	180	U	180	10
10727	N-Nitrosodiphenylamine	86-30-6	180	U	180	10
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	720	U	720	10

Sample Description: S24-SS01-0002-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500548
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 12:05 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S2411 SDG#: DHR10-09

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Pentachlorophenol	87-86-5	360	U	360	10
10727	Phenanthrene	85-01-8	5,200		36	10
10727	Phenol	108-95-2	180	U	180	10
10727	Pyrene	129-00-0	11,000		36	10
10727	2,4,5-Trichlorophenol	95-95-4	180	U	180	10
10727	2,4,6-Trichlorophenol	88-06-2	180	U	180	10
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	261		0.0191	1
06949	Cadmium	7440-43-9	1.10		0.0212	1
06951	Chromium	7440-47-3	18.4		0.148	1
06955	Lead	7439-92-1	6.35		0.233	1
06936	Selenium	7782-49-2	4.99		0.720	1
06966	Silver	7440-22-4	0.0879 U		0.0879	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	2.16		0.0847	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0073 U		0.0073	1
Wet Chemistry	**SM20 2540 G**		**%**		**%**	
00111	Moisture	n.a.	7.4		0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	Q113562AA	12/23/2011 05:53	Sara E Johnson	0.95
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134926443	12/15/2011 12:26	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134926443	12/15/2011 12:26	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134926443	12/15/2011 12:25	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11350SLE026	12/19/2011 15:07	Matthew S Woods	1
10727	TCL 8270 (microwave)	SW-846 8270C	2	11350SLE026	12/19/2011 18:53	Matthew S Woods	10
10809	BNA Soil Microwave	SW-846 3546	1	11350SLE026	12/17/2011 11:30	Sally L Appleyard	1
06946	Barium	SW-846 6010B	1	113505708003	12/20/2011 22:21	John W Yanzuk II	1
06949	Cadmium	SW-846 6010B	1	113505708003	12/22/2011 21:27	John P Hook	1
06951	Chromium	SW-846 6010B	1	113505708003	12/20/2011 22:21	John W Yanzuk II	1
06955	Lead	SW-846 6010B	1	113505708003	12/22/2011 21:27	John P Hook	1
06936	Selenium	SW-846 6010B	1	113505708003	12/20/2011 22:21	John W Yanzuk II	1

Sample Description: S24-SS01-0002-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500548
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 12:05 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S2411 SDG#: DHR10-09

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06966	Silver	SW-846 6010B	1	113505708003	12/22/2011 21:27	John P Hook	1
06125	Arsenic	SW-846 6020	1	113501026002A	12/22/2011 15:57	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113505711003	12/19/2011 09:13	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113505708003	12/18/2011 19:56	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113501026002	12/18/2011 19:58	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113505711003	12/18/2011 23:10	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11350820002A	12/16/2011 18:29	Scott W Freisher	1

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Analysis Report

Sample Description: S24-SS01-0305-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500549
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 12:10 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S2412 SDG#: DHR10-10

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	25		7	0.83
10949	Benzene	71-43-2	0.5	U	0.5	0.83
10949	Bromobenzene	108-86-1	1	U	1	0.83
10949	Bromochloromethane	74-97-5	1	U	1	0.83
10949	Bromodichloromethane	75-27-4	1	U	1	0.83
10949	Bromoform	75-25-2	1	U	1	0.83
10949	Bromomethane	74-83-9	2	U	2	0.83
10949	2-Butanone	78-93-3	4	U	4	0.83
10949	n-Butylbenzene	104-51-8	1	U	1	0.83
10949	sec-Butylbenzene	135-98-8	1	U	1	0.83
10949	tert-Butylbenzene	98-06-6	1	U	1	0.83
10949	Carbon Disulfide	75-15-0	1	U	1	0.83
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.83
10949	Chlorobenzene	108-90-7	1	U	1	0.83
10949	Chloroethane	75-00-3	2	U	2	0.83
10949	Chloroform	67-66-3	1	U	1	0.83
10949	Chloromethane	74-87-3	2	U	2	0.83
10949	2-Chlorotoluene	95-49-8	1	U	1	0.83
10949	4-Chlorotoluene	106-43-4	1	U	1	0.83
10949	Cyclohexane	110-82-7	1	U	1	0.83
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.83
10949	Dibromochloromethane	124-48-1	1	U	1	0.83
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.83
10949	Dibromomethane	74-95-3	1	U	1	0.83
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.83
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.83
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.83
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.83
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.83
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.83
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.83
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.83
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.83
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.83
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.83
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.83
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.83
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.83
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.83
10949	Ethylbenzene	100-41-4	1	U	1	0.83
10949	Freon 113	76-13-1	2	U	2	0.83
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.83
10949	2-Hexanone	591-78-6	3	U	3	0.83
10949	Isopropylbenzene	98-82-8	1	U	1	0.83
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.83
10949	Methyl Acetate	79-20-9	2	U	2	0.83
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.83
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.83
10949	Methylcyclohexane	108-87-2	1	U	1	0.83
10949	Methylene Chloride	75-09-2	2	U	2	0.83
10949	Naphthalene	91-20-3	1	U	1	0.83

Sample Description: S24-SS01-0305-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500549
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 12:10 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S2412 SDG#: DHR10-10

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.83
10949	Styrene	100-42-5	1	U	1	0.83
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.83
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.83
10949	Tetrachloroethene	127-18-4	1	U	1	0.83
10949	Toluene	108-88-3	1	U	1	0.83
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.83
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.83
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.83
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.83
10949	Trichloroethene	79-01-6	1	U	1	0.83
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.83
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.83
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.83
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.83
10949	Vinyl Acetate	108-05-4	2	U	2	0.83
10949	Vinyl Chloride	75-01-4	1	U	1	0.83
10949	m+p-Xylene	179601-23-1	1	U	1	0.83
10949	o-Xylene	95-47-6	1	U	1	0.83

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 4-methyl-2-pentanone.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	22		4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	20	U	20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	81	U	81	1
10727	Di-n-butylphthalate	84-74-2	81	U	81	1
10727	Carbazole	86-74-8	20	U	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	20	U	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1

Sample Description: S24-SS01-0305-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500549
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 12:10 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S2412 SDG#: DHR10-10

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Diethylphthalate	84-66-2	81	U	81	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	81	U	81	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1
10727	2,4-Dinitrophenol	51-28-5	410	U	410	1
10727	2,4-Dinitrotoluene	121-14-2	81	U	81	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	81	U	81	1
10727	Fluoranthene	206-44-0	6	J	4	1
10727	Fluorene	86-73-7	8	J	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	41	U	41	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	81	U	81	1
10727	4-Nitroaniline	100-01-6	81	U	81	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	81	U	81	1
10727	Pentachlorophenol	87-86-5	41	U	41	1
10727	Phenanthrene	85-01-8	6	J	4	1
10727	Phenol	108-95-2	20	U	20	1
10727	Pyrene	129-00-0	8	J	4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	91.1		0.0216	1
06949	Cadmium	7440-43-9	1.12		0.0240	1
06951	Chromium	7440-47-3	15.6		0.168	1
06955	Lead	7439-92-1	12.7		0.264	1
06936	Selenium	7782-49-2	0.815	U	0.815	1
06966	Silver	7440-22-4	0.0995	U	0.0995	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	14.7		0.0959	2

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Analysis Report

Sample Description: S24-SS01-0305-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500549
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 12:10 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S2412 SDG#: DHR10-10

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0133 J	0.0085	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	18.2	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	Q113562AA	12/23/2011 06:39	Sara E Johnson	0.83
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134926443	12/15/2011 12:28	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134926443	12/15/2011 12:28	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134926443	12/15/2011 12:27	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11350SLE026	12/19/2011 15:32	Matthew S Woods	1
10809	BNA Soil Microwave	SW-846 3546	1	11350SLE026	12/17/2011 11:30	Sally L Appleyard	1
06946	Barium	SW-846 6010B	1	113505708003	12/20/2011 22:25	John W Yanzuk II	1
06949	Cadmium	SW-846 6010B	1	113505708003	12/22/2011 21:32	John P Hook	1
06951	Chromium	SW-846 6010B	1	113505708003	12/20/2011 22:25	John W Yanzuk II	1
06955	Lead	SW-846 6010B	1	113505708003	12/22/2011 21:32	John P Hook	1
06936	Selenium	SW-846 6010B	1	113505708003	12/20/2011 22:25	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	113505708003	12/20/2011 22:25	John W Yanzuk II	1
06125	Arsenic	SW-846 6020	1	113501026002A	12/22/2011 15:58	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113505711003	12/19/2011 09:15	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113505708003	12/18/2011 19:56	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113501026002	12/18/2011 19:58	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113505711003	12/18/2011 23:10	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11350820002A	12/16/2011 18:29	Scott W Freisher	1

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Analysis Report

Sample Description: S24-SS01-0810-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500550
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 12:15 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S2413 SDG#: DHR10-11

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	11	J	7	0.97
10949	Benzene	71-43-2	0.5	U	0.5	0.97
10949	Bromobenzene	108-86-1	1	U	1	0.97
10949	Bromochloromethane	74-97-5	1	U	1	0.97
10949	Bromodichloromethane	75-27-4	1	U	1	0.97
10949	Bromoform	75-25-2	1	U	1	0.97
10949	Bromomethane	74-83-9	2	U	2	0.97
10949	2-Butanone	78-93-3	4	U	4	0.97
10949	n-Butylbenzene	104-51-8	1	U	1	0.97
10949	sec-Butylbenzene	135-98-8	1	U	1	0.97
10949	tert-Butylbenzene	98-06-6	1	U	1	0.97
10949	Carbon Disulfide	75-15-0	1	U	1	0.97
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.97
10949	Chlorobenzene	108-90-7	1	U	1	0.97
10949	Chloroethane	75-00-3	2	U	2	0.97
10949	Chloroform	67-66-3	1	U	1	0.97
10949	Chloromethane	74-87-3	2	U	2	0.97
10949	2-Chlorotoluene	95-49-8	1	U	1	0.97
10949	4-Chlorotoluene	106-43-4	1	U	1	0.97
10949	Cyclohexane	110-82-7	1	U	1	0.97
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.97
10949	Dibromochloromethane	124-48-1	1	U	1	0.97
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.97
10949	Dibromomethane	74-95-3	1	U	1	0.97
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.97
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.97
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.97
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.97
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.97
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.97
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.97
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.97
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.97
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.97
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.97
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.97
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.97
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.97
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.97
10949	Ethylbenzene	100-41-4	1	U	1	0.97
10949	Freon 113	76-13-1	2	U	2	0.97
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.97
10949	2-Hexanone	591-78-6	3	U	3	0.97
10949	Isopropylbenzene	98-82-8	1	U	1	0.97
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.97
10949	Methyl Acetate	79-20-9	2	U	2	0.97
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.97
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.97
10949	Methylcyclohexane	108-87-2	1	U	1	0.97
10949	Methylene Chloride	75-09-2	2	U	2	0.97
10949	Naphthalene	91-20-3	1	U	1	0.97

Sample Description: S24-SS01-0810-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500550
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 12:15 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S2413 SDG#: DHR10-11

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.97
10949	Styrene	100-42-5	1	U	1	0.97
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.97
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.97
10949	Tetrachloroethene	127-18-4	1	U	1	0.97
10949	Toluene	108-88-3	1	U	1	0.97
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.97
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.97
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.97
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.97
10949	Trichloroethene	79-01-6	1	U	1	0.97
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.97
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.97
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.97
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.97
10949	Vinyl Acetate	108-05-4	2	U	2	0.97
10949	Vinyl Chloride	75-01-4	1	U	1	0.97
10949	m+p-Xylene	179601-23-1	1	U	1	0.97
10949	o-Xylene	95-47-6	1	U	1	0.97

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 4-methyl-2-pentanone.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	6	J	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	180	U	180	1
10727	1,1'-Biphenyl	92-52-4	18	U	18	1
10727	4-Bromophenyl-phenylether	101-55-3	18	U	18	1
10727	Butylbenzylphthalate	85-68-7	72	U	72	1
10727	Di-n-butylphthalate	84-74-2	72	U	72	1
10727	Carbazole	86-74-8	18	U	18	1
10727	4-Chloro-3-methylphenol	59-50-7	18	U	18	1
10727	4-Chloroaniline	106-47-8	18	U	18	1
10727	bis(2-Chloroethoxy)methane	111-91-1	18	U	18	1
10727	bis(2-Chloroethyl)ether	111-44-4	18	U	18	1
10727	2-Chloronaphthalene	91-58-7	8	U	8	1
10727	2-Chlorophenol	95-57-8	18	U	18	1
10727	4-Chlorophenyl-phenylether	7005-72-3	18	U	18	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	18	U	18	1
10727	3,3'-Dichlorobenzidine	91-94-1	110	U	110	1
10727	2,4-Dichlorophenol	120-83-2	18	U	18	1

Sample Description: S24-SS01-0810-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500550
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 12:15 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S2413 SDG#: DHR10-11

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Diethylphthalate	84-66-2	72	U	72	1
10727	2,4-Dimethylphenol	105-67-9	18	U	18	1
10727	Dimethylphthalate	131-11-3	72	U	72	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	180	U	180	1
10727	2,4-Dinitrophenol	51-28-5	360	U	360	1
10727	2,4-Dinitrotoluene	121-14-2	72	U	72	1
10727	2,6-Dinitrotoluene	606-20-2	18	U	18	1
10727	1,4-Dioxane	123-91-1	110	U	110	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	72	U	72	1
10727	Fluoranthene	206-44-0	9	J	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	180	U	180	1
10727	Hexachloroethane	67-72-1	36	U	36	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	18	U	18	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	18	U	18	1
10727	4-Methylphenol	106-44-5	18	U	18	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	18	U	18	1
10727	3-Nitroaniline	99-09-2	72	U	72	1
10727	4-Nitroaniline	100-01-6	72	U	72	1
10727	Nitrobenzene	98-95-3	18	U	18	1
10727	2-Nitrophenol	88-75-5	18	U	18	1
10727	4-Nitrophenol	100-02-7	180	U	180	1
10727	N-Nitroso-di-n-propylamine	621-64-7	18	U	18	1
10727	N-Nitrosodiphenylamine	86-30-6	18	U	18	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	72	U	72	1
10727	Pentachlorophenol	87-86-5	36	U	36	1
10727	Phenanthrene	85-01-8	6	J	4	1
10727	Phenol	108-95-2	18	U	18	1
10727	Pyrene	129-00-0	11	J	4	1
10727	2,4,5-Trichlorophenol	95-95-4	18	U	18	1
10727	2,4,6-Trichlorophenol	88-06-2	18	U	18	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	54.4		0.0189	1
06949	Cadmium	7440-43-9	0.679		0.0210	1
06951	Chromium	7440-47-3	7.41		0.147	1
06955	Lead	7439-92-1	3.82		0.231	1
06936	Selenium	7782-49-2	0.714	U	0.714	1
06966	Silver	7440-22-4	0.0871	U	0.0871	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	6.63		0.0848	2

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Analysis Report

Sample Description: S24-SS01-0810-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500550
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 12:15 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S2413 SDG#: DHR10-11

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0075 U	0.0075	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	7.5	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	Q113562AA	12/23/2011 07:02	Sara E Johnson	0.97
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134926443	12/15/2011 12:30	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134926443	12/15/2011 12:30	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134926443	12/15/2011 12:29	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11350SLE026	12/19/2011 15:57	Matthew S Woods	1
10809	BNA Soil Microwave	SW-846 3546	1	11350SLE026	12/17/2011 11:30	Sally L Appleyard	1
06946	Barium	SW-846 6010B	1	113505708003	12/20/2011 22:29	John W Yanzuk II	1
06949	Cadmium	SW-846 6010B	1	113505708003	12/22/2011 21:36	John P Hook	1
06951	Chromium	SW-846 6010B	1	113505708003	12/20/2011 22:29	John W Yanzuk II	1
06955	Lead	SW-846 6010B	1	113505708003	12/22/2011 21:36	John P Hook	1
06936	Selenium	SW-846 6010B	1	113505708003	12/20/2011 22:29	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	113505708003	12/20/2011 22:29	John W Yanzuk II	1
06125	Arsenic	SW-846 6020	1	113501026002A	12/22/2011 16:03	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113505711003	12/19/2011 09:16	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113505708003	12/18/2011 19:56	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113501026002	12/18/2011 19:58	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113505711003	12/18/2011 23:10	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11350820002A	12/16/2011 18:29	Scott W Freisher	1

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Analysis Report

Sample Description: S24-SS01-2123-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500551
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 12:40 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S2414 SDG#: DHR10-12

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	8	J	8	1.02
10949	Benzene	71-43-2	0.5	U	0.5	1.02
10949	Bromobenzene	108-86-1	1	U	1	1.02
10949	Bromochloromethane	74-97-5	1	U	1	1.02
10949	Bromodichloromethane	75-27-4	1	U	1	1.02
10949	Bromoform	75-25-2	1	U	1	1.02
10949	Bromomethane	74-83-9	2	U	2	1.02
10949	2-Butanone	78-93-3	4	U	4	1.02
10949	n-Butylbenzene	104-51-8	1	U	1	1.02
10949	sec-Butylbenzene	135-98-8	1	U	1	1.02
10949	tert-Butylbenzene	98-06-6	1	U	1	1.02
10949	Carbon Disulfide	75-15-0	1	U	1	1.02
10949	Carbon Tetrachloride	56-23-5	1	U	1	1.02
10949	Chlorobenzene	108-90-7	1	U	1	1.02
10949	Chloroethane	75-00-3	2	U	2	1.02
10949	Chloroform	67-66-3	1	U	1	1.02
10949	Chloromethane	74-87-3	2	U	2	1.02
10949	2-Chlorotoluene	95-49-8	1	U	1	1.02
10949	4-Chlorotoluene	106-43-4	1	U	1	1.02
10949	Cyclohexane	110-82-7	1	U	1	1.02
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	1.02
10949	Dibromochloromethane	124-48-1	1	U	1	1.02
10949	1,2-Dibromoethane	106-93-4	1	U	1	1.02
10949	Dibromomethane	74-95-3	1	U	1	1.02
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	1.02
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	1.02
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	1.02
10949	Dichlorodifluoromethane	75-71-8	2	U	2	1.02
10949	1,1-Dichloroethane	75-34-3	1	U	1	1.02
10949	1,2-Dichloroethane	107-06-2	1	U	1	1.02
10949	1,1-Dichloroethene	75-35-4	1	U	1	1.02
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	1.02
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	1.02
10949	1,2-Dichloropropane	78-87-5	1	U	1	1.02
10949	1,3-Dichloropropane	142-28-9	1	U	1	1.02
10949	2,2-Dichloropropane	594-20-7	1	U	1	1.02
10949	1,1-Dichloropropene	563-58-6	1	U	1	1.02
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	1.02
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	1.02
10949	Ethylbenzene	100-41-4	1	U	1	1.02
10949	Freon 113	76-13-1	2	U	2	1.02
10949	Hexachlorobutadiene	87-68-3	2	U	2	1.02
10949	2-Hexanone	591-78-6	3	U	3	1.02
10949	Isopropylbenzene	98-82-8	1	U	1	1.02
10949	p-Isopropyltoluene	99-87-6	1	U	1	1.02
10949	Methyl Acetate	79-20-9	2	U	2	1.02
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	1.02
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	1.02
10949	Methylcyclohexane	108-87-2	1	U	1	1.02
10949	Methylene Chloride	75-09-2	2	U	2	1.02
10949	Naphthalene	91-20-3	1	U	1	1.02

Sample Description: S24-SS01-2123-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500551
LLI Group # 1281221
Account # 11372

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Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S2414 SDG#: DHR10-12

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	1.02
10949	Styrene	100-42-5	1	U	1	1.02
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	1.02
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	1.02
10949	Tetrachloroethene	127-18-4	1	U	1	1.02
10949	Toluene	108-88-3	1	U	1	1.02
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	1.02
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	1.02
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	1.02
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	1.02
10949	Trichloroethene	79-01-6	1	U	1	1.02
10949	Trichlorofluoromethane	75-69-4	2	U	2	1.02
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	1.02
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	1.02
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	1.02
10949	Vinyl Acetate	108-05-4	2	U	2	1.02
10949	Vinyl Chloride	75-01-4	1	U	1	1.02
10949	m+p-Xylene	179601-23-1	1	U	1	1.02
10949	o-Xylene	95-47-6	1	U	1	1.02

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 4-methyl-2-pentanone.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	J	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	5	J	4	1
10727	Benzo(a)pyrene	50-32-8	4	J	4	1
10727	Benzo(b)fluoranthene	205-99-2	10	J	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	180	U	180	1
10727	1,1'-Biphenyl	92-52-4	18	U	18	1
10727	4-Bromophenyl-phenylether	101-55-3	18	U	18	1
10727	Butylbenzylphthalate	85-68-7	70	U	70	1
10727	Di-n-butylphthalate	84-74-2	70	U	70	1
10727	Carbazole	86-74-8	18	U	18	1
10727	4-Chloro-3-methylphenol	59-50-7	18	U	18	1
10727	4-Chloroaniline	106-47-8	18	U	18	1
10727	bis(2-Chloroethoxy)methane	111-91-1	18	U	18	1
10727	bis(2-Chloroethyl)ether	111-44-4	18	U	18	1
10727	2-Chloronaphthalene	91-58-7	7	U	7	1
10727	2-Chlorophenol	95-57-8	18	U	18	1
10727	4-Chlorophenyl-phenylether	7005-72-3	18	U	18	1
10727	Chrysene	218-01-9	22		4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	18	U	18	1
10727	3,3'-Dichlorobenzidine	91-94-1	110	U	110	1
10727	2,4-Dichlorophenol	120-83-2	18	U	18	1

Sample Description: S24-SS01-2123-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500551
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 12:40 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S2414 SDG#: DHR10-12

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Diethylphthalate	84-66-2	70	U	70	1
10727	2,4-Dimethylphenol	105-67-9	18	U	18	1
10727	Dimethylphthalate	131-11-3	70	U	70	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	180	U	180	1
10727	2,4-Dinitrophenol	51-28-5	350	U	350	1
10727	2,4-Dinitrotoluene	121-14-2	70	U	70	1
10727	2,6-Dinitrotoluene	606-20-2	18	U	18	1
10727	1,4-Dioxane	123-91-1	110	U	110	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	70	U	70	1
10727	Fluoranthene	206-44-0	14	J	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	180	U	180	1
10727	Hexachloroethane	67-72-1	35	U	35	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	18	U	18	1
10727	2-Methylnaphthalene	91-57-6	5	J	4	1
10727	2-Methylphenol	95-48-7	18	U	18	1
10727	4-Methylphenol	106-44-5	18	U	18	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	18	U	18	1
10727	3-Nitroaniline	99-09-2	70	U	70	1
10727	4-Nitroaniline	100-01-6	70	U	70	1
10727	Nitrobenzene	98-95-3	18	U	18	1
10727	2-Nitrophenol	88-75-5	18	U	18	1
10727	4-Nitrophenol	100-02-7	180	U	180	1
10727	N-Nitroso-di-n-propylamine	621-64-7	18	U	18	1
10727	N-Nitrosodiphenylamine	86-30-6	18	U	18	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	70	U	70	1
10727	Pentachlorophenol	87-86-5	35	U	35	1
10727	Phenanthrene	85-01-8	65		4	1
10727	Phenol	108-95-2	18	U	18	1
10727	Pyrene	129-00-0	16	J	4	1
10727	2,4,5-Trichlorophenol	95-95-4	18	U	18	1
10727	2,4,6-Trichlorophenol	88-06-2	18	U	18	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	61.7		0.0186	1
06949	Cadmium	7440-43-9	0.300	J	0.0207	1
06951	Chromium	7440-47-3	4.23		0.145	1
06955	Lead	7439-92-1	3.70		0.228	1
06936	Selenium	7782-49-2	0.704	U	0.704	1
06966	Silver	7440-22-4	0.0859	U	0.0859	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	5.68		0.0836	2

Sample Description: S24-SS01-2123-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500551
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 12:40 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S2414 SDG#: DHR10-12

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0072 U	0.0072	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	5.3	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	Q113562AA	12/23/2011 07:25	Sara E Johnson	1.02
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134926443	12/15/2011 12:32	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134926443	12/15/2011 12:32	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134926443	12/15/2011 12:31	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11350SLE026	12/19/2011 16:22	Matthew S Woods	1
10809	BNA Soil Microwave	SW-846 3546	1	11350SLE026	12/17/2011 11:30	Sally L Appleyard	1
06946	Barium	SW-846 6010B	1	113505708003	12/20/2011 22:33	John W Yanzuk II	1
06949	Cadmium	SW-846 6010B	1	113505708003	12/22/2011 21:40	John P Hook	1
06951	Chromium	SW-846 6010B	1	113505708003	12/20/2011 22:33	John W Yanzuk II	1
06955	Lead	SW-846 6010B	1	113505708003	12/22/2011 21:40	John P Hook	1
06936	Selenium	SW-846 6010B	1	113505708003	12/20/2011 22:33	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	113505708003	12/20/2011 22:33	John W Yanzuk II	1
06125	Arsenic	SW-846 6020	1	113501026002A	12/22/2011 16:05	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113505711003	12/19/2011 09:17	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113505708003	12/18/2011 19:56	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113501026002	12/18/2011 19:58	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113505711003	12/18/2011 23:10	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11350820002A	12/16/2011 18:29	Scott W Freisher	1

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Analysis Report

Sample Description: HGR-121411-EB01 Grab Water Sample
Dow Hanging Rock, OH

LLI Sample # WW 6500552
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 14:05 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HG14E SDG#: DHR10-13EB

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**		**ug/l**	
04678	Acenaphthene	83-32-9	0.1	U	0.1	1
04678	Acenaphthylene	208-96-8	0.1	U	0.1	1
04678	Anthracene	120-12-7	0.1	U	0.1	1
04678	Benzo(a)anthracene	56-55-3	0.1	U	0.1	1
04678	Benzo(a)pyrene	50-32-8	0.1	U	0.1	1
04678	Benzo(b)fluoranthene	205-99-2	0.1	U	0.1	1
04678	Benzo(g,h,i)perylene	191-24-2	0.1	U	0.1	1
04678	Benzo(k)fluoranthene	207-08-9	0.1	U	0.1	1
04678	Benzyl alcohol	100-51-6	5	U	5	1
04678	1,1'-Biphenyl	92-52-4	0.5	U	0.5	1
04678	4-Bromophenyl-phenylether	101-55-3	0.5	U	0.5	1
04678	Butylbenzylphthalate	85-68-7	2	U	2	1
04678	Di-n-butylphthalate	84-74-2	2	U	2	1
04678	Carbazole	86-74-8	0.5	U	0.5	1
04678	4-Chloro-3-methylphenol	59-50-7	0.5	U	0.5	1
04678	4-Chloroaniline	106-47-8	0.5	U	0.5	1
04678	bis(2-Chloroethoxy)methane	111-91-1	0.5	U	0.5	1
04678	bis(2-Chloroethyl)ether	111-44-4	0.5	U	0.5	1
04678	2-Chloronaphthalene	91-58-7	0.4	U	0.4	1
04678	2-Chlorophenol	95-57-8	0.5	U	0.5	1
04678	4-Chlorophenyl-phenylether	7005-72-3	0.5	U	0.5	1
04678	Chrysene	218-01-9	0.1	U	0.1	1
04678	Dibenz(a,h)anthracene	53-70-3	0.1	U	0.1	1
04678	Dibenzofuran	132-64-9	0.5	U	0.5	1
04678	3,3'-Dichlorobenzidine	91-94-1	2	U	2	1
04678	2,4-Dichlorophenol	120-83-2	0.5	U	0.5	1
04678	Diethylphthalate	84-66-2	2	U	2	1
04678	2,4-Dimethylphenol	105-67-9	0.5	U	0.5	1
04678	Dimethylphthalate	131-11-3	2	U	2	1
04678	4,6-Dinitro-2-methylphenol	534-52-1	5	U	5	1
04678	2,4-Dinitrophenol	51-28-5	10	U	10	1
04678	2,4-Dinitrotoluene	121-14-2	1	U	1	1
04678	2,6-Dinitrotoluene	606-20-2	0.5	U	0.5	1
04678	1,4-Dioxane	123-91-1	1	U	1	1
04678	bis(2-Ethylhexyl)phthalate	117-81-7	2	U	2	1
04678	Fluoranthene	206-44-0	0.1	U	0.1	1
04678	Fluorene	86-73-7	0.1	U	0.1	1
04678	Hexachlorobenzene	118-74-1	0.1	U	0.1	1
04678	Hexachlorocyclopentadiene	77-47-4	5	U	5	1
04678	Hexachloroethane	67-72-1	1	U	1	1
04678	Indeno(1,2,3-cd)pyrene	193-39-5	0.1	U	0.1	1
04678	Isophorone	78-59-1	0.5	U	0.5	1
04678	2-Methylnaphthalene	91-57-6	0.1	U	0.1	1
04678	2-Methylphenol	95-48-7	0.5	U	0.5	1
04678	4-Methylphenol	106-44-5	0.5	U	0.5	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
04678	2-Nitroaniline	88-74-4	0.5	U	0.5	1
04678	3-Nitroaniline	99-09-2	0.5	U	0.5	1
04678	4-Nitroaniline	100-01-6	0.5	U	0.5	1

Sample Description: HGR-121411-EB01 Grab Water Sample
Dow Hanging Rock, OH

LLI Sample # WW 6500552
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 14:05 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HG14E SDG#: DHR10-13EB

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**		**ug/l**	
04678	Nitrobenzene	98-95-3	0.5	U	0.5	1
04678	2-Nitrophenol	88-75-5	0.5	U	0.5	1
04678	4-Nitrophenol	100-02-7	10	U	10	1
04678	N-Nitroso-di-n-propylamine	621-64-7	0.5	U	0.5	1
04678	N-Nitrosodiphenylamine	86-30-6	0.5	U	0.5	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
04678	Di-n-octylphthalate	117-84-0	2	U	2	1
04678	Pentachlorophenol	87-86-5	1	U	1	1
04678	Phenanthrene	85-01-8	0.1	U	0.1	1
04678	Phenol	108-95-2	0.5	U	0.5	1
04678	Pyrene	129-00-0	0.1	U	0.1	1
04678	2,4,5-Trichlorophenol	95-95-4	0.5	U	0.5	1
04678	2,4,6-Trichlorophenol	88-06-2	0.5	U	0.5	1
Metals	**SW-846 6010B**		**mg/l**		**mg/l**	
07046	Barium	7440-39-3	0.00026	U	0.00026	1
07049	Cadmium	7440-43-9	0.00027	U	0.00027	1
07051	Chromium	7440-47-3	0.0011	U	0.0011	1
07055	Lead	7439-92-1	0.0022	U	0.0022	1
07036	Selenium	7782-49-2	0.0069	U	0.0069	1
07066	Silver	7440-22-4	0.00091	U	0.00091	1
	SW-846 6020		**mg/l**		**mg/l**	
06025	Arsenic	7440-38-2	0.00095	U	0.00095	1
	SW-846 7470A		**mg/l**		**mg/l**	
00259	Mercury	7439-97-6	0.000026	U	0.000026	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	11353WAA026	12/20/2011 22:05	Holly Berry	1
00813	BNA Water Extraction	SW-846 3510C	1	11353WAA026	12/19/2011 22:00	Elaine F Stoltzfus	1
07046	Barium	SW-846 6010B	1	113555705002	12/22/2011 23:20	John P Hook	1
07049	Cadmium	SW-846 6010B	1	113555705002	12/22/2011 23:20	John P Hook	1
07051	Chromium	SW-846 6010B	1	113555705002	12/22/2011 23:20	John P Hook	1
07055	Lead	SW-846 6010B	1	113555705002	12/22/2011 23:20	John P Hook	1
07036	Selenium	SW-846 6010B	1	113555705002	12/22/2011 23:20	John P Hook	1
07066	Silver	SW-846 6010B	1	113555705002	12/22/2011 23:20	John P Hook	1

Sample Description: HGR-121411-EB01 Grab Water Sample
Dow Hanging Rock, OH

LLI Sample # WW 6500552
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 14:05 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HG14E SDG#: DHR10-13EB

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	SW-846 6020	1	113536050003A	12/21/2011 07:52	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	113565713002	12/30/2011 01:04	Parker D Lindstrom	1
05705	WW/TL SW 846 ICP Digest (tot)	SW-846 3010A	1	113555705002	12/22/2011 09:33	Denise K Conners	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	113536050003	12/20/2011 08:40	Denise K Conners	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	113565713002	12/22/2011 15:52	Nelli S Markaryan	1

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Analysis Report

Sample Description: S17-SS02-0002-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500553
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 14:20 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S1721 SDG#: DHR10-14BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	67		8	0.91
10949	Benzene	71-43-2	0.6	U	0.6	0.91
10949	Bromobenzene	108-86-1	1	U	1	0.91
10949	Bromochloromethane	74-97-5	1	U	1	0.91
10949	Bromodichloromethane	75-27-4	1	U	1	0.91
10949	Bromoform	75-25-2	1	U	1	0.91
10949	Bromomethane	74-83-9	2	U	2	0.91
10949	2-Butanone	78-93-3	5	U	5	0.91
10949	n-Butylbenzene	104-51-8	1	U	1	0.91
10949	sec-Butylbenzene	135-98-8	1	U	1	0.91
10949	tert-Butylbenzene	98-06-6	1	U	1	0.91
10949	Carbon Disulfide	75-15-0	1	U	1	0.91
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.91
10949	Chlorobenzene	108-90-7	1	U	1	0.91
10949	Chloroethane	75-00-3	2	U	2	0.91
10949	Chloroform	67-66-3	1	U	1	0.91
10949	Chloromethane	74-87-3	2	U	2	0.91
10949	2-Chlorotoluene	95-49-8	1	U	1	0.91
10949	4-Chlorotoluene	106-43-4	1	U	1	0.91
10949	Cyclohexane	110-82-7	1	U	1	0.91
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.91
10949	Dibromochloromethane	124-48-1	1	U	1	0.91
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.91
10949	Dibromomethane	74-95-3	1	U	1	0.91
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.91
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.91
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.91
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.91
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.91
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.91
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.91
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.91
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.91
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.91
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.91
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.91
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.91
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.91
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.91
10949	Ethylbenzene	100-41-4	1	U	1	0.91
10949	Freon 113	76-13-1	2	U	2	0.91
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.91
10949	2-Hexanone	591-78-6	3	U	3	0.91
10949	Isopropylbenzene	98-82-8	1	U	1	0.91
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.91
10949	Methyl Acetate	79-20-9	2	U	2	0.91
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.6	U	0.6	0.91
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.91
10949	Methylcyclohexane	108-87-2	1	U	1	0.91
10949	Methylene Chloride	75-09-2	2	U	2	0.91
10949	Naphthalene	91-20-3	1	U	1	0.91

Sample Description: S17-SS02-0002-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500553
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 14:20 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S1721 SDG#: DHR10-14BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.91
10949	Styrene	100-42-5	1	U	1	0.91
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.91
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.91
10949	Tetrachloroethene	127-18-4	1	U	1	0.91
10949	Toluene	108-88-3	1	U	1	0.91
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.91
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.91
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.91
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.91
10949	Trichloroethene	79-01-6	1	U	1	0.91
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.91
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.91
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.91
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.91
10949	Vinyl Acetate	108-05-4	2	U	2	0.91
10949	Vinyl Chloride	75-01-4	1	U	1	0.91
10949	m+p-Xylene	179601-23-1	1	U	1	0.91
10949	o-Xylene	95-47-6	1	U	1	0.91

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 4-Methyl-2-pentanone

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	11	J	4	1
10727	Anthracene	120-12-7	5	J	4	1
10727	Benzo(a)anthracene	56-55-3	12	J	4	1
10727	Benzo(a)pyrene	50-32-8	20	J	4	1
10727	Benzo(b)fluoranthene	205-99-2	24		4	1
10727	Benzo(g,h,i)perylene	191-24-2	21	J	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	210	U	210	1
10727	1,1'-Biphenyl	92-52-4	58		21	1
10727	4-Bromophenyl-phenylether	101-55-3	21	U	21	1
10727	Butylbenzylphthalate	85-68-7	83	U	83	1
10727	Di-n-butylphthalate	84-74-2	83	U	83	1
10727	Carbazole	86-74-8	21	U	21	1
10727	4-Chloro-3-methylphenol	59-50-7	21	U	21	1
10727	4-Chloroaniline	106-47-8	21	U	21	1
10727	bis(2-Chloroethoxy)methane	111-91-1	21	U	21	1
10727	bis(2-Chloroethyl)ether	111-44-4	21	U	21	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	21	U	21	1
10727	4-Chlorophenyl-phenylether	7005-72-3	21	U	21	1
10727	Chrysene	218-01-9	16	J	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	21	U	21	1
10727	3,3'-Dichlorobenzidine	91-94-1	130	U	130	1
10727	2,4-Dichlorophenol	120-83-2	21	U	21	1

Sample Description: S17-SS02-0002-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500553
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 14:20 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S1721 SDG#: DHR10-14BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Diethylphthalate	84-66-2	83	U	83	1
10727	2,4-Dimethylphenol	105-67-9	21	U	21	1
10727	Dimethylphthalate	131-11-3	83	U	83	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	210	U	210	1
10727	2,4-Dinitrophenol	51-28-5	420	U	420	1
10727	2,4-Dinitrotoluene	121-14-2	83	U	83	1
10727	2,6-Dinitrotoluene	606-20-2	21	U	21	1
10727	1,4-Dioxane	123-91-1	130	U	130	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	83	U	83	1
10727	Fluoranthene	206-44-0	25		4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	210	U	210	1
10727	Hexachloroethane	67-72-1	42	U	42	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	20	J	4	1
10727	Isophorone	78-59-1	21	U	21	1
10727	2-Methylnaphthalene	91-57-6	49		4	1
10727	2-Methylphenol	95-48-7	21	U	21	1
10727	4-Methylphenol	106-44-5	21	U	21	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	21	U	21	1
10727	3-Nitroaniline	99-09-2	83	U	83	1
10727	4-Nitroaniline	100-01-6	83	U	83	1
10727	Nitrobenzene	98-95-3	21	U	21	1
10727	2-Nitrophenol	88-75-5	21	U	21	1
10727	4-Nitrophenol	100-02-7	210	U	210	1
10727	N-Nitroso-di-n-propylamine	621-64-7	21	U	21	1
10727	N-Nitrosodiphenylamine	86-30-6	21	U	21	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	83	U	83	1
10727	Pentachlorophenol	87-86-5	42	U	42	1
10727	Phenanthrene	85-01-8	14	J	4	1
10727	Phenol	108-95-2	21	U	21	1
10727	Pyrene	129-00-0	30		4	1
10727	2,4,5-Trichlorophenol	95-95-4	21	U	21	1
10727	2,4,6-Trichlorophenol	88-06-2	21	U	21	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	160		0.0218	1
06949	Cadmium	7440-43-9	1.89		0.0243	1
06951	Chromium	7440-47-3	58.1		0.170	1
06955	Lead	7439-92-1	19.7		0.267	1
06936	Selenium	7782-49-2	0.825	U	0.825	1
06966	Silver	7440-22-4	0.101	U	0.101	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	11.9		0.0990	2

Sample Description: S17-SS02-0002-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500553
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 14:20 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S1721 SDG#: DHR10-14BKG

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0112 J	0.0087	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	20.0	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	Q113562AA	12/23/2011 06:16	Sara E Johnson	0.91
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134926443	12/15/2011 12:34	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134926443	12/15/2011 12:34	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134926443	12/15/2011 12:33	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11350SLE026	12/19/2011 16:47	Matthew S Woods	1
10809	BNA Soil Microwave	SW-846 3546	1	11350SLE026	12/17/2011 11:30	Sally L Appleyard	1
06946	Barium	SW-846 6010B	1	113505708003	12/20/2011 21:19	John W Yanzuk II	1
06949	Cadmium	SW-846 6010B	1	113505708003	12/22/2011 20:33	John P Hook	1
06951	Chromium	SW-846 6010B	1	113505708003	12/20/2011 21:19	John W Yanzuk II	1
06955	Lead	SW-846 6010B	1	113505708003	12/20/2011 21:19	John W Yanzuk II	1
06936	Selenium	SW-846 6010B	1	113505708003	12/20/2011 21:19	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	113505708003	12/20/2011 21:19	John W Yanzuk II	1
06125	Arsenic	SW-846 6020	1	113501026002A	12/22/2011 15:31	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113505711003	12/19/2011 09:18	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113505708003	12/18/2011 19:56	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113501026002	12/18/2011 19:58	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113505711003	12/18/2011 23:10	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11350820002B	12/16/2011 18:29	Scott W Freisher	1

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Analysis Report

Sample Description: S17-SS02-0002-121411MS Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500554
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 14:20 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S1721 SDG#: DHR10-14MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**	**ug/kg**	
10949	Acetone	67-64-1	290	8	0.93
10949	Benzene	71-43-2	17	0.6	0.93
10949	Bromobenzene	108-86-1	15	1	0.93
10949	Bromochloromethane	74-97-5	18	1	0.93
10949	Bromodichloromethane	75-27-4	17	1	0.93
10949	Bromoform	75-25-2	15	1	0.93
10949	Bromomethane	74-83-9	15	2	0.93
10949	2-Butanone	78-93-3	160	5	0.93
10949	n-Butylbenzene	104-51-8	14	1	0.93
10949	sec-Butylbenzene	135-98-8	15	1	0.93
10949	tert-Butylbenzene	98-06-6	15	1	0.93
10949	Carbon Disulfide	75-15-0	18	1	0.93
10949	Carbon Tetrachloride	56-23-5	16	1	0.93
10949	Chlorobenzene	108-90-7	16	1	0.93
10949	Chloroethane	75-00-3	13	2	0.93
10949	Chloroform	67-66-3	17	1	0.93
10949	Chloromethane	74-87-3	12	2	0.93
10949	2-Chlorotoluene	95-49-8	15	1	0.93
10949	4-Chlorotoluene	106-43-4	15	1	0.93
10949	Cyclohexane	110-82-7	17	1	0.93
10949	1,2-Dibromo-3-chloropropane	96-12-8	17	2	0.93
10949	Dibromochloromethane	124-48-1	17	1	0.93
10949	1,2-Dibromoethane	106-93-4	18	1	0.93
10949	Dibromomethane	74-95-3	18	1	0.93
10949	1,2-Dichlorobenzene	95-50-1	14	1	0.93
10949	1,3-Dichlorobenzene	541-73-1	14	1	0.93
10949	1,4-Dichlorobenzene	106-46-7	14	1	0.93
10949	Dichlorodifluoromethane	75-71-8	10	2	0.93
10949	1,1-Dichloroethane	75-34-3	17	1	0.93
10949	1,2-Dichloroethane	107-06-2	19	1	0.93
10949	1,1-Dichloroethene	75-35-4	17	1	0.93
10949	cis-1,2-Dichloroethene	156-59-2	17	1	0.93
10949	trans-1,2-Dichloroethene	156-60-5	17	1	0.93
10949	1,2-Dichloropropane	78-87-5	17	1	0.93
10949	1,3-Dichloropropane	142-28-9	18	1	0.93
10949	2,2-Dichloropropane	594-20-7	16	1	0.93
10949	1,1-Dichloropropene	563-58-6	16	1	0.93
10949	cis-1,3-Dichloropropene	10061-01-5	16	1	0.93
10949	trans-1,3-Dichloropropene	10061-02-6	15	1	0.93
10949	Ethylbenzene	100-41-4	16	1	0.93
10949	Freon 113	76-13-1	17	2	0.93
10949	Hexachlorobutadiene	87-68-3	13	2	0.93
10949	2-Hexanone	591-78-6	79	3	0.93
10949	Isopropylbenzene	98-82-8	15	1	0.93
10949	p-Isopropyltoluene	99-87-6	15	1	0.93
10949	Methyl Acetate	79-20-9	25	2	0.93
10949	Methyl Tertiary Butyl Ether	1634-04-4	20	0.6	0.93
10949	4-Methyl-2-pentanone	108-10-1	94	3	0.93
10949	Methylcyclohexane	108-87-2	16	1	0.93
10949	Methylene Chloride	75-09-2	18	2	0.93
10949	Naphthalene	91-20-3	11	1	0.93

Sample Description: S17-SS02-0002-121411MS Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500554
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 14:20 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S1721 SDG#: DHR10-14MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**	**ug/kg**	
10949	n-Propylbenzene	103-65-1	16	1	0.93
10949	Styrene	100-42-5	14	1	0.93
10949	1,1,1,2-Tetrachloroethane	630-20-6	16	1	0.93
10949	1,1,2,2-Tetrachloroethane	79-34-5	19	1	0.93
10949	Tetrachloroethene	127-18-4	16	1	0.93
10949	Toluene	108-88-3	17	1	0.93
10949	1,2,3-Trichlorobenzene	87-61-6	12	1	0.93
10949	1,2,4-Trichlorobenzene	120-82-1	12	1	0.93
10949	1,1,1-Trichloroethane	71-55-6	17	1	0.93
10949	1,1,2-Trichloroethane	79-00-5	19	1	0.93
10949	Trichloroethene	79-01-6	18	1	0.93
10949	Trichlorofluoromethane	75-69-4	16	2	0.93
10949	1,2,3-Trichloropropane	96-18-4	19	1	0.93
10949	1,2,4-Trimethylbenzene	95-63-6	15	1	0.93
10949	1,3,5-Trimethylbenzene	108-67-8	15	1	0.93
10949	Vinyl Acetate	108-05-4	120	2	0.91
10949	Vinyl Chloride	75-01-4	13	1	0.93
10949	m+p-Xylene	179601-23-1	31	1	0.93
10949	o-Xylene	95-47-6	16	1	0.93

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 4-methyl-2-pentanone.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**	**ug/kg**	
10727	Acenaphthene	83-32-9	1,900	4	1
10727	Acenaphthylene	208-96-8	2,000	4	1
10727	Anthracene	120-12-7	1,900	4	1
10727	Benzo(a)anthracene	56-55-3	1,800	4	1
10727	Benzo(a)pyrene	50-32-8	1,900	4	1
10727	Benzo(b)fluoranthene	205-99-2	1,700	4	1
10727	Benzo(g,h,i)perylene	191-24-2	1,900	4	1
10727	Benzo(k)fluoranthene	207-08-9	1,900	4	1
10727	Benzyl alcohol	100-51-6	1,600	210	1
10727	1,1'-Biphenyl	92-52-4	2,000	21	1
10727	4-Bromophenyl-phenylether	101-55-3	2,000	21	1
10727	Butylbenzylphthalate	85-68-7	2,000	83	1
10727	Di-n-butylphthalate	84-74-2	1,900	83	1
10727	Carbazole	86-74-8	1,800	21	1
10727	4-Chloro-3-methylphenol	59-50-7	1,700	21	1
10727	4-Chloroaniline	106-47-8	1,500	21	1
10727	bis(2-Chloroethoxy)methane	111-91-1	1,900	21	1
10727	bis(2-Chloroethyl)ether	111-44-4	1,900	21	1
10727	2-Chloronaphthalene	91-58-7	1,700	9	1
10727	2-Chlorophenol	95-57-8	1,900	21	1
10727	4-Chlorophenyl-phenylether	7005-72-3	1,800	21	1
10727	Chrysene	218-01-9	1,900	4	1
10727	Dibenz(a,h)anthracene	53-70-3	2,000	4	1
10727	Dibenzofuran	132-64-9	1,800	21	1
10727	3,3'-Dichlorobenzidine	91-94-1	1,600	130	1
10727	2,4-Dichlorophenol	120-83-2	1,800	21	1

Sample Description: S17-SS02-0002-121411MS Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500554
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 14:20 by OO

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CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S1721 SDG#: DHR10-14MS

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Diethylphthalate	84-66-2	1,800		83	1
10727	2,4-Dimethylphenol	105-67-9	1,700		21	1
10727	Dimethylphthalate	131-11-3	1,900		83	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	950		210	1
10727	2,4-Dinitrophenol	51-28-5	1,100	J	420	1
10727	2,4-Dinitrotoluene	121-14-2	1,800		83	1
10727	2,6-Dinitrotoluene	606-20-2	1,900		21	1
10727	1,4-Dioxane	123-91-1	1,000		130	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	2,100		83	1
10727	Fluoranthene	206-44-0	1,700		4	1
10727	Fluorene	86-73-7	1,800		4	1
10727	Hexachlorobenzene	118-74-1	1,800		4	1
10727	Hexachlorocyclopentadiene	77-47-4	1,600		210	1
10727	Hexachloroethane	67-72-1	1,700		42	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	2,000		4	1
10727	Isophorone	78-59-1	1,800		21	1
10727	2-Methylnaphthalene	91-57-6	1,800		4	1
10727	2-Methylphenol	95-48-7	1,800		21	1
10727	4-Methylphenol	106-44-5	1,800		21	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	1,900		21	1
10727	3-Nitroaniline	99-09-2	1,800		83	1
10727	4-Nitroaniline	100-01-6	1,400		83	1
10727	Nitrobenzene	98-95-3	1,900		21	1
10727	2-Nitrophenol	88-75-5	1,800		21	1
10727	4-Nitrophenol	100-02-7	1,500		210	1
10727	N-Nitroso-di-n-propylamine	621-64-7	1,700		21	1
10727	N-Nitrosodiphenylamine	86-30-6	2,100		21	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	2,000		83	1
10727	Pentachlorophenol	87-86-5	1,500		42	1
10727	Phenanthrene	85-01-8	1,900		4	1
10727	Phenol	108-95-2	1,800		21	1
10727	Pyrene	129-00-0	1,800		4	1
10727	2,4,5-Trichlorophenol	95-95-4	1,900		21	1
10727	2,4,6-Trichlorophenol	88-06-2	1,900		21	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	408		0.0223	1
06949	Cadmium	7440-43-9	6.52		0.0248	1
06951	Chromium	7440-47-3	90.7		0.173	1
06955	Lead	7439-92-1	37.0		0.272	1
06936	Selenium	7782-49-2	18.2		0.842	1
06966	Silver	7440-22-4	5.27		0.103	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	19.9		0.100	2

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Analysis Report

Sample Description: S17-SS02-0002-121411MS Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500554
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 14:20 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S1721 SDG#: DHR10-14MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 7471A**		mg/kg	mg/kg	
00159	Mercury	7439-97-6	0.211	0.0087	1
Wet Chemistry	**SM20 2540 G**		%	%	
00118	Moisture	n.a.	20.0	0.50	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	Q113562AA	12/23/2011 02:48	Sara E Johnson	0.93
10949	8260 Ext. Soil Master	SW-846 8260B	1	Q113562AA	12/23/2011 03:35	Sara E Johnson	0.91
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134926443	12/15/2011 12:35	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134926443	12/15/2011 12:36	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134926443	12/15/2011 12:35	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11350SLE026	12/19/2011 17:12	Matthew S Woods	1
10809	BNA Soil Microwave	SW-846 3546	1	11350SLE026	12/17/2011 11:30	Sally L Appleyard	1
06946	Barium	SW-846 6010B	1	113505708003	12/20/2011 21:31	John W Yanzuk II	1
06949	Cadmium	SW-846 6010B	1	113505708003	12/20/2011 21:31	John W Yanzuk II	1
06951	Chromium	SW-846 6010B	1	113505708003	12/20/2011 21:31	John W Yanzuk II	1
06955	Lead	SW-846 6010B	1	113505708003	12/20/2011 21:31	John W Yanzuk II	1
06936	Selenium	SW-846 6010B	1	113505708003	12/20/2011 21:31	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	113505708003	12/20/2011 21:31	John W Yanzuk II	1
06125	Arsenic	SW-846 6020	1	113501026002A	12/22/2011 15:36	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113505711003	12/19/2011 09:22	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113505708003	12/18/2011 19:56	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113501026002	12/18/2011 19:58	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113505711003	12/18/2011 23:10	Annamaria Stipkovits	1
00118	Moisture	SM20 2540 G	1	11350820002B	12/16/2011 18:29	Scott W Freisher	1

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Analysis Report

Sample Description: S17-SS02-0002-121411MSD Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500555
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 14:20 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S1721 SDG#: DHR10-14MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**	**ug/kg**	
10949	Acetone	67-64-1	180	7	0.83
10949	Benzene	71-43-2	19	0.5	0.83
10949	Bromobenzene	108-86-1	19	1	0.83
10949	Bromochloromethane	74-97-5	20	1	0.83
10949	Bromodichloromethane	75-27-4	18	1	0.83
10949	Bromoform	75-25-2	17	1	0.83
10949	Bromomethane	74-83-9	14	2	0.83
10949	2-Butanone	78-93-3	130	4	0.83
10949	n-Butylbenzene	104-51-8	19	1	0.83
10949	sec-Butylbenzene	135-98-8	20	1	0.83
10949	tert-Butylbenzene	98-06-6	19	1	0.83
10949	Carbon Disulfide	75-15-0	19	1	0.83
10949	Carbon Tetrachloride	56-23-5	19	1	0.83
10949	Chlorobenzene	108-90-7	18	1	0.83
10949	Chloroethane	75-00-3	14	2	0.83
10949	Chloroform	67-66-3	19	1	0.83
10949	Chloromethane	74-87-3	12	2	0.83
10949	2-Chlorotoluene	95-49-8	19	1	0.83
10949	4-Chlorotoluene	106-43-4	19	1	0.83
10949	Cyclohexane	110-82-7	20	1	0.83
10949	1,2-Dibromo-3-chloropropane	96-12-8	20	2	0.83
10949	Dibromochloromethane	124-48-1	18	1	0.83
10949	1,2-Dibromoethane	106-93-4	20	1	0.83
10949	Dibromomethane	74-95-3	20	1	0.83
10949	1,2-Dichlorobenzene	95-50-1	18	1	0.83
10949	1,3-Dichlorobenzene	541-73-1	18	1	0.83
10949	1,4-Dichlorobenzene	106-46-7	18	1	0.83
10949	Dichlorodifluoromethane	75-71-8	10	2	0.83
10949	1,1-Dichloroethane	75-34-3	19	1	0.83
10949	1,2-Dichloroethane	107-06-2	20	1	0.83
10949	1,1-Dichloroethene	75-35-4	19	1	0.83
10949	cis-1,2-Dichloroethene	156-59-2	19	1	0.83
10949	trans-1,2-Dichloroethene	156-60-5	18	1	0.83
10949	1,2-Dichloropropane	78-87-5	19	1	0.83
10949	1,3-Dichloropropane	142-28-9	20	1	0.83
10949	2,2-Dichloropropane	594-20-7	18	1	0.83
10949	1,1-Dichloropropene	563-58-6	19	1	0.83
10949	cis-1,3-Dichloropropene	10061-01-5	18	1	0.83
10949	trans-1,3-Dichloropropene	10061-02-6	18	1	0.83
10949	Ethylbenzene	100-41-4	19	1	0.83
10949	Freon 113	76-13-1	19	2	0.83
10949	Hexachlorobutadiene	87-68-3	17	2	0.83
10949	2-Hexanone	591-78-6	72	3	0.83
10949	Isopropylbenzene	98-82-8	19	1	0.83
10949	p-Isopropyltoluene	99-87-6	19	1	0.83
10949	Methyl Acetate	79-20-9	22	2	0.83
10949	Methyl Tertiary Butyl Ether	1634-04-4	19	0.5	0.83
10949	4-Methyl-2-pentanone	108-10-1	90	3	0.83
10949	Methylcyclohexane	108-87-2	19	1	0.83
10949	Methylene Chloride	75-09-2	19	2	0.83
10949	Naphthalene	91-20-3	16	1	0.83

Sample Description: S17-SS02-0002-121411MSD Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500555
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 14:20 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S1721 SDG#: DHR10-14MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**	**ug/kg**	
10949	n-Propylbenzene	103-65-1	20	1	0.83
10949	Styrene	100-42-5	18	1	0.83
10949	1,1,1,2-Tetrachloroethane	630-20-6	18	1	0.83
10949	1,1,2,2-Tetrachloroethane	79-34-5	19	1	0.83
10949	Tetrachloroethene	127-18-4	19	1	0.83
10949	Toluene	108-88-3	19	1	0.83
10949	1,2,3-Trichlorobenzene	87-61-6	16	1	0.83
10949	1,2,4-Trichlorobenzene	120-82-1	16	1	0.83
10949	1,1,1-Trichloroethane	71-55-6	18	1	0.83
10949	1,1,2-Trichloroethane	79-00-5	20	1	0.83
10949	Trichloroethene	79-01-6	19	1	0.83
10949	Trichlorofluoromethane	75-69-4	16	2	0.83
10949	1,2,3-Trichloropropane	96-18-4	20	1	0.83
10949	1,2,4-Trimethylbenzene	95-63-6	19	1	0.83
10949	1,3,5-Trimethylbenzene	108-67-8	19	1	0.83
10949	Vinyl Acetate	108-05-4	98	2	0.77
10949	Vinyl Chloride	75-01-4	14	1	0.83
10949	m+p-Xylene	179601-23-1	37	1	0.83
10949	o-Xylene	95-47-6	19	1	0.83

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 4-methyl-2-pentanone.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**	**ug/kg**	
10727	Acenaphthene	83-32-9	1,800	4	1
10727	Acenaphthylene	208-96-8	2,000	4	1
10727	Anthracene	120-12-7	1,900	4	1
10727	Benzo(a)anthracene	56-55-3	1,700	4	1
10727	Benzo(a)pyrene	50-32-8	1,800	4	1
10727	Benzo(b)fluoranthene	205-99-2	1,600	4	1
10727	Benzo(g,h,i)perylene	191-24-2	1,900	4	1
10727	Benzo(k)fluoranthene	207-08-9	1,800	4	1
10727	Benzyl alcohol	100-51-6	1,700	210	1
10727	1,1'-Biphenyl	92-52-4	2,100	21	1
10727	4-Bromophenyl-phenylether	101-55-3	1,900	21	1
10727	Butylbenzylphthalate	85-68-7	2,000	83	1
10727	Di-n-butylphthalate	84-74-2	2,000	83	1
10727	Carbazole	86-74-8	1,800	21	1
10727	4-Chloro-3-methylphenol	59-50-7	1,700	21	1
10727	4-Chloroaniline	106-47-8	1,500	21	1
10727	bis(2-Chloroethoxy)methane	111-91-1	1,900	21	1
10727	bis(2-Chloroethyl)ether	111-44-4	1,900	21	1
10727	2-Chloronaphthalene	91-58-7	1,700	9	1
10727	2-Chlorophenol	95-57-8	1,900	21	1
10727	4-Chlorophenyl-phenylether	7005-72-3	1,800	21	1
10727	Chrysene	218-01-9	1,800	4	1
10727	Dibenz(a,h)anthracene	53-70-3	1,900	4	1
10727	Dibenzofuran	132-64-9	1,800	21	1
10727	3,3'-Dichlorobenzidine	91-94-1	1,600	130	1
10727	2,4-Dichlorophenol	120-83-2	1,800	21	1

Sample Description: S17-SS02-0002-121411MSD Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500555
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 14:20 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S1721 SDG#: DHR10-14MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**	**ug/kg**	
10727	Diethylphthalate	84-66-2	1,900	83	1
10727	2,4-Dimethylphenol	105-67-9	1,800	21	1
10727	Dimethylphthalate	131-11-3	1,900	83	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	1,100	210	1
10727	2,4-Dinitrophenol	51-28-5	1,400	420	1
10727	2,4-Dinitrotoluene	121-14-2	1,800	83	1
10727	2,6-Dinitrotoluene	606-20-2	1,900	21	1
10727	1,4-Dioxane	123-91-1	1,100	130	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	2,100	83	1
10727	Fluoranthene	206-44-0	1,700	4	1
10727	Fluorene	86-73-7	1,800	4	1
10727	Hexachlorobenzene	118-74-1	1,800	4	1
10727	Hexachlorocyclopentadiene	77-47-4	1,600	210	1
10727	Hexachloroethane	67-72-1	1,800	42	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	1,900	4	1
10727	Isophorone	78-59-1	1,800	21	1
10727	2-Methylnaphthalene	91-57-6	1,900	4	1
10727	2-Methylphenol	95-48-7	1,900	21	1
10727	4-Methylphenol	106-44-5	1,900	21	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.				
10727	2-Nitroaniline	88-74-4	1,900	21	1
10727	3-Nitroaniline	99-09-2	1,800	83	1
10727	4-Nitroaniline	100-01-6	1,400	83	1
10727	Nitrobenzene	98-95-3	1,900	21	1
10727	2-Nitrophenol	88-75-5	1,800	21	1
10727	4-Nitrophenol	100-02-7	1,600	210	1
10727	N-Nitroso-di-n-propylamine	621-64-7	1,700	21	1
10727	N-Nitrosodiphenylamine	86-30-6	2,100	21	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.				
10727	Di-n-octylphthalate	117-84-0	2,100	83	1
10727	Pentachlorophenol	87-86-5	1,500	42	1
10727	Phenanthrene	85-01-8	1,800	4	1
10727	Phenol	108-95-2	1,800	21	1
10727	Pyrene	129-00-0	1,800	4	1
10727	2,4,5-Trichlorophenol	95-95-4	1,900	21	1
10727	2,4,6-Trichlorophenol	88-06-2	1,900	21	1
Metals	**SW-846 6010B**		**mg/kg**	**mg/kg**	
06946	Barium	7440-39-3	411	0.0221	1
06949	Cadmium	7440-43-9	6.36	0.0245	1
06951	Chromium	7440-47-3	83.5	0.172	1
06955	Lead	7439-92-1	37.4	0.270	1
06936	Selenium	7782-49-2	17.9	0.833	1
06966	Silver	7440-22-4	5.19	0.102	1
	SW-846 6020		**mg/kg**	**mg/kg**	
06125	Arsenic	7440-38-2	16.7	0.0980	2

Sample Description: S17-SS02-0002-121411MSD Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500555
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 14:20 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S1721 SDG#: DHR10-14MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 7471A**		mg/kg	mg/kg	
00159	Mercury	7439-97-6	0.204	0.0085	1
Wet Chemistry	**SM20 2540 G**		%	%	
00118	Moisture	n.a.	20.0	0.50	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	Q113562AA	12/23/2011 03:11	Sara E Johnson	0.83
10949	8260 Ext. Soil Master	SW-846 8260B	1	Q113562AA	12/23/2011 03:58	Sara E Johnson	0.77
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134926443	12/15/2011 12:37	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134926443	12/15/2011 12:38	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134926443	12/15/2011 12:37	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11350SLE026	12/19/2011 17:37	Matthew S Woods	1
10809	BNA Soil Microwave	SW-846 3546	1	11350SLE026	12/17/2011 11:30	Sally L Appleyard	1
06946	Barium	SW-846 6010B	1	113505708003	12/20/2011 21:35	John W Yanzuk II	1
06949	Cadmium	SW-846 6010B	1	113505708003	12/20/2011 21:35	John W Yanzuk II	1
06951	Chromium	SW-846 6010B	1	113505708003	12/20/2011 21:35	John W Yanzuk II	1
06955	Lead	SW-846 6010B	1	113505708003	12/20/2011 21:35	John W Yanzuk II	1
06936	Selenium	SW-846 6010B	1	113505708003	12/20/2011 21:35	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	113505708003	12/20/2011 21:35	John W Yanzuk II	1
06125	Arsenic	SW-846 6020	1	113501026002A	12/22/2011 15:38	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113505711003	12/19/2011 09:23	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113505708003	12/18/2011 19:56	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113501026002	12/18/2011 19:58	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113505711003	12/18/2011 23:10	Annamaria Stipkovits	1
00118	Moisture	SM20 2540 G	1	11350820002B	12/16/2011 18:29	Scott W Freisher	1

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Analysis Report

Sample Description: S17-SS02-0002-121411DUP Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500556
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 14:20 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S1721 SDG#: DHR10-14DUP

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals		**SW-846 6010B**	**mg/kg**	**mg/kg**	
06946	Barium	7440-39-3	160	0.0223	1
06949	Cadmium	7440-43-9	0.821	0.0248	1
06951	Chromium	7440-47-3	67.3	0.173	1
06955	Lead	7439-92-1	21.7	0.272	1
06936	Selenium	7782-49-2	0.842 U	0.842	1
06966	Silver	7440-22-4	0.103 U	0.103	1
		SW-846 6020	**mg/kg**	**mg/kg**	
06125	Arsenic	7440-38-2	15.8	0.0971	2
		SW-846 7471A	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0105 J	0.0085	1
Wet Chemistry		**SM20 2540 G**	**%**	**%**	
00118	Moisture	n.a.	20.0	0.50	1
00121	Moisture Duplicate	n.a.	20.3	0.50	1

The duplicate moisture value is provided to assess the precision of the moisture test. For comparability purposes, the initial moisture determination is the value used to perform dry weight calculations.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06946	Barium	SW-846 6010B	1	113505708003	12/20/2011 21:27	John W Yanzuk II	1
06949	Cadmium	SW-846 6010B	1	113505708003	12/28/2011 09:56	Joanne M Gates	1
06951	Chromium	SW-846 6010B	1	113505708003	12/20/2011 21:27	John W Yanzuk II	1
06955	Lead	SW-846 6010B	1	113505708003	12/20/2011 21:27	John W Yanzuk II	1
06936	Selenium	SW-846 6010B	1	113505708003	12/20/2011 21:27	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	113505708003	12/20/2011 21:27	John W Yanzuk II	1
06125	Arsenic	SW-846 6020	1	113501026002A	12/22/2011 15:35	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113505711003	12/19/2011 09:21	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113505708003	12/18/2011 19:56	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113501026002	12/18/2011 19:58	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113505711003	12/18/2011 23:10	Annamaria Stipkovits	1
00118	Moisture	SM20 2540 G	1	11350820002B	12/16/2011 18:29	Scott W Freisher	1
00121	Moisture Duplicate	SM20 2540 G	1	11350820002B	12/16/2011 18:29	Scott W Freisher	1

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Analysis Report

Sample Description: S17-SS02-0305-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500557
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 14:25 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S1722 SDG#: DHR10-15

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	17	J	8	0.96
10949	Benzene	71-43-2	0.6	U	0.6	0.96
10949	Bromobenzene	108-86-1	1	U	1	0.96
10949	Bromochloromethane	74-97-5	1	U	1	0.96
10949	Bromodichloromethane	75-27-4	1	U	1	0.96
10949	Bromoform	75-25-2	1	U	1	0.96
10949	Bromomethane	74-83-9	2	U	2	0.96
10949	2-Butanone	78-93-3	5	U	5	0.96
10949	n-Butylbenzene	104-51-8	1	U	1	0.96
10949	sec-Butylbenzene	135-98-8	1	U	1	0.96
10949	tert-Butylbenzene	98-06-6	1	U	1	0.96
10949	Carbon Disulfide	75-15-0	1	U	1	0.96
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.96
10949	Chlorobenzene	108-90-7	1	U	1	0.96
10949	Chloroethane	75-00-3	2	U	2	0.96
10949	Chloroform	67-66-3	1	U	1	0.96
10949	Chloromethane	74-87-3	2	U	2	0.96
10949	2-Chlorotoluene	95-49-8	1	U	1	0.96
10949	4-Chlorotoluene	106-43-4	1	U	1	0.96
10949	Cyclohexane	110-82-7	1	U	1	0.96
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.96
10949	Dibromochloromethane	124-48-1	1	U	1	0.96
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.96
10949	Dibromomethane	74-95-3	1	U	1	0.96
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.96
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.96
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.96
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.96
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.96
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.96
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.96
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.96
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.96
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.96
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.96
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.96
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.96
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.96
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.96
10949	Ethylbenzene	100-41-4	1	U	1	0.96
10949	Freon 113	76-13-1	2	U	2	0.96
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.96
10949	2-Hexanone	591-78-6	4	U	4	0.96
10949	Isopropylbenzene	98-82-8	1	U	1	0.96
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.96
10949	Methyl Acetate	79-20-9	2	U	2	0.96
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.6	U	0.6	0.96
10949	4-Methyl-2-pentanone	108-10-1	4	U	4	0.96
10949	Methylcyclohexane	108-87-2	1	U	1	0.96
10949	Methylene Chloride	75-09-2	2	U	2	0.96
10949	Naphthalene	91-20-3	1	U	1	0.96

Sample Description: S17-SS02-0305-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500557
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 14:25 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S1722 SDG#: DHR10-15

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.96
10949	Styrene	100-42-5	1	U	1	0.96
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.96
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.96
10949	Tetrachloroethene	127-18-4	1	U	1	0.96
10949	Toluene	108-88-3	1	U	1	0.96
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.96
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.96
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.96
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.96
10949	Trichloroethene	79-01-6	1	U	1	0.96
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.96
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.96
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.96
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.96
10949	Vinyl Acetate	108-05-4	2	U	2	0.96
10949	Vinyl Chloride	75-01-4	1	U	1	0.96
10949	m+p-Xylene	179601-23-1	1	U	1	0.96
10949	o-Xylene	95-47-6	1	U	1	0.96

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 4-methyl-2-pentanone.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	210	U	210	1
10727	1,1'-Biphenyl	92-52-4	21	U	21	1
10727	4-Bromophenyl-phenylether	101-55-3	21	U	21	1
10727	Butylbenzylphthalate	85-68-7	84	U	84	1
10727	Di-n-butylphthalate	84-74-2	84	U	84	1
10727	Carbazole	86-74-8	21	U	21	1
10727	4-Chloro-3-methylphenol	59-50-7	21	U	21	1
10727	4-Chloroaniline	106-47-8	21	U	21	1
10727	bis(2-Chloroethoxy)methane	111-91-1	21	U	21	1
10727	bis(2-Chloroethyl)ether	111-44-4	21	U	21	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	21	U	21	1
10727	4-Chlorophenyl-phenylether	7005-72-3	21	U	21	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	21	U	21	1
10727	3,3'-Dichlorobenzidine	91-94-1	130	U	130	1
10727	2,4-Dichlorophenol	120-83-2	21	U	21	1

Sample Description: S17-SS02-0305-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500557
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 14:25 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S1722 SDG#: DHR10-15

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Diethylphthalate	84-66-2	84	U	84	1
10727	2,4-Dimethylphenol	105-67-9	21	U	21	1
10727	Dimethylphthalate	131-11-3	84	U	84	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	210	U	210	1
10727	2,4-Dinitrophenol	51-28-5	420	U	420	1
10727	2,4-Dinitrotoluene	121-14-2	84	U	84	1
10727	2,6-Dinitrotoluene	606-20-2	21	U	21	1
10727	1,4-Dioxane	123-91-1	130	U	130	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	84	U	84	1
10727	Fluoranthene	206-44-0	7	J	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	210	U	210	1
10727	Hexachloroethane	67-72-1	42	U	42	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	21	U	21	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	21	U	21	1
10727	4-Methylphenol	106-44-5	21	U	21	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	21	U	21	1
10727	3-Nitroaniline	99-09-2	84	U	84	1
10727	4-Nitroaniline	100-01-6	84	U	84	1
10727	Nitrobenzene	98-95-3	21	U	21	1
10727	2-Nitrophenol	88-75-5	21	U	21	1
10727	4-Nitrophenol	100-02-7	210	U	210	1
10727	N-Nitroso-di-n-propylamine	621-64-7	21	U	21	1
10727	N-Nitrosodiphenylamine	86-30-6	21	U	21	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	84	U	84	1
10727	Pentachlorophenol	87-86-5	42	U	42	1
10727	Phenanthrene	85-01-8	5	J	4	1
10727	Phenol	108-95-2	21	U	21	1
10727	Pyrene	129-00-0	10	J	4	1
10727	2,4,5-Trichlorophenol	95-95-4	21	U	21	1
10727	2,4,6-Trichlorophenol	88-06-2	21	U	21	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	87.3		0.0219	1
06949	Cadmium	7440-43-9	0.864		0.0243	1
06951	Chromium	7440-47-3	15.3		0.170	1
06955	Lead	7439-92-1	8.86		0.267	1
06936	Selenium	7782-49-2	0.827	U	0.827	1
06966	Silver	7440-22-4	0.101	U	0.101	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	11.8		0.100	2

Sample Description: S17-SS02-0305-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500557
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 14:25 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S1722 SDG#: DHR10-15

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0107 J	0.0085	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	20.9	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	Q113562AA	12/23/2011 07:47	Sara E Johnson	0.96
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134926443	12/15/2011 12:39	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134926443	12/15/2011 12:40	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134926443	12/15/2011 12:39	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11350SLE026	12/19/2011 18:02	Matthew S Woods	1
10809	BNA Soil Microwave	SW-846 3546	1	11350SLE026	12/17/2011 11:30	Sally L Appleyard	1
06946	Barium	SW-846 6010B	1	113505708003	12/20/2011 22:45	John W Yanzuk II	1
06949	Cadmium	SW-846 6010B	1	113505708003	12/22/2011 21:43	John P Hook	1
06951	Chromium	SW-846 6010B	1	113505708003	12/20/2011 22:45	John W Yanzuk II	1
06955	Lead	SW-846 6010B	1	113505708003	12/22/2011 21:43	John P Hook	1
06936	Selenium	SW-846 6010B	1	113505708003	12/20/2011 22:45	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	113505708003	12/20/2011 22:45	John W Yanzuk II	1
06125	Arsenic	SW-846 6020	1	113501026002A	12/22/2011 16:06	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113505711003	12/19/2011 09:25	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113505708003	12/18/2011 19:56	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113501026002	12/18/2011 19:58	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113505711003	12/18/2011 23:10	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11350820002B	12/16/2011 18:29	Scott W Freisher	1

Sample Description: S17-SS02-0810-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500558
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 14:30 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S1723 SDG#: DHR10-16

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	38		8	1.05
10949	Benzene	71-43-2	0.6	U	0.6	1.05
10949	Bromobenzene	108-86-1	1	U	1	1.05
10949	Bromochloromethane	74-97-5	1	U	1	1.05
10949	Bromodichloromethane	75-27-4	1	U	1	1.05
10949	Bromoform	75-25-2	1	U	1	1.05
10949	Bromomethane	74-83-9	2	U	2	1.05
10949	2-Butanone	78-93-3	4	U	4	1.05
10949	n-Butylbenzene	104-51-8	1	U	1	1.05
10949	sec-Butylbenzene	135-98-8	1	U	1	1.05
10949	tert-Butylbenzene	98-06-6	1	U	1	1.05
10949	Carbon Disulfide	75-15-0	1	U	1	1.05
10949	Carbon Tetrachloride	56-23-5	1	U	1	1.05
10949	Chlorobenzene	108-90-7	1	U	1	1.05
10949	Chloroethane	75-00-3	2	U	2	1.05
10949	Chloroform	67-66-3	1	U	1	1.05
10949	Chloromethane	74-87-3	2	U	2	1.05
10949	2-Chlorotoluene	95-49-8	1	U	1	1.05
10949	4-Chlorotoluene	106-43-4	1	U	1	1.05
10949	Cyclohexane	110-82-7	1	U	1	1.05
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	1.05
10949	Dibromochloromethane	124-48-1	1	U	1	1.05
10949	1,2-Dibromoethane	106-93-4	1	U	1	1.05
10949	Dibromomethane	74-95-3	1	U	1	1.05
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	1.05
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	1.05
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	1.05
10949	Dichlorodifluoromethane	75-71-8	2	U	2	1.05
10949	1,1-Dichloroethane	75-34-3	1	U	1	1.05
10949	1,2-Dichloroethane	107-06-2	1	U	1	1.05
10949	1,1-Dichloroethene	75-35-4	1	U	1	1.05
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	1.05
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	1.05
10949	1,2-Dichloropropane	78-87-5	1	U	1	1.05
10949	1,3-Dichloropropane	142-28-9	1	U	1	1.05
10949	2,2-Dichloropropane	594-20-7	1	U	1	1.05
10949	1,1-Dichloropropene	563-58-6	1	U	1	1.05
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	1.05
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	1.05
10949	Ethylbenzene	100-41-4	1	U	1	1.05
10949	Freon 113	76-13-1	2	U	2	1.05
10949	Hexachlorobutadiene	87-68-3	2	U	2	1.05
10949	2-Hexanone	591-78-6	3	U	3	1.05
10949	Isopropylbenzene	98-82-8	1	U	1	1.05
10949	p-Isopropyltoluene	99-87-6	1	U	1	1.05
10949	Methyl Acetate	79-20-9	2	U	2	1.05
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.6	U	0.6	1.05
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	1.05
10949	Methylcyclohexane	108-87-2	1	U	1	1.05
10949	Methylene Chloride	75-09-2	2	U	2	1.05
10949	Naphthalene	91-20-3	1	U	1	1.05

Sample Description: S17-SS02-0810-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500558
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 14:30 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S1723 SDG#: DHR10-16

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	1.05
10949	Styrene	100-42-5	1	U	1	1.05
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	1.05
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	1.05
10949	Tetrachloroethene	127-18-4	6		1	1.05
10949	Toluene	108-88-3	1	U	1	1.05
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	1.05
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	1.05
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	1.05
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	1.05
10949	Trichloroethene	79-01-6	1	U	1	1.05
10949	Trichlorofluoromethane	75-69-4	2	U	2	1.05
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	1.05
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	1.05
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	1.05
10949	Vinyl Acetate	108-05-4	2	U	2	1.05
10949	Vinyl Chloride	75-01-4	1	U	1	1.05
10949	m+p-Xylene	179601-23-1	1	U	1	1.05
10949	o-Xylene	95-47-6	1	U	1	1.05

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 4-methyl-2-pentanone.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	180	U	180	1
10727	1,1'-Biphenyl	92-52-4	18	U	18	1
10727	4-Bromophenyl-phenylether	101-55-3	18	U	18	1
10727	Butylbenzylphthalate	85-68-7	71	U	71	1
10727	Di-n-butylphthalate	84-74-2	71	U	71	1
10727	Carbazole	86-74-8	18	U	18	1
10727	4-Chloro-3-methylphenol	59-50-7	18	U	18	1
10727	4-Chloroaniline	106-47-8	18	U	18	1
10727	bis(2-Chloroethoxy)methane	111-91-1	18	U	18	1
10727	bis(2-Chloroethyl)ether	111-44-4	18	U	18	1
10727	2-Chloronaphthalene	91-58-7	7	U	7	1
10727	2-Chlorophenol	95-57-8	18	U	18	1
10727	4-Chlorophenyl-phenylether	7005-72-3	18	U	18	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	18	U	18	1
10727	3,3'-Dichlorobenzidine	91-94-1	110	U	110	1
10727	2,4-Dichlorophenol	120-83-2	18	U	18	1

Sample Description: S17-SS02-0810-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500558
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 14:30 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S1723 SDG#: DHR10-16

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Diethylphthalate	84-66-2	71	U	71	1
10727	2,4-Dimethylphenol	105-67-9	18	U	18	1
10727	Dimethylphthalate	131-11-3	71	U	71	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	180	U	180	1
10727	2,4-Dinitrophenol	51-28-5	360	U	360	1
10727	2,4-Dinitrotoluene	121-14-2	71	U	71	1
10727	2,6-Dinitrotoluene	606-20-2	18	U	18	1
10727	1,4-Dioxane	123-91-1	110	U	110	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	71	U	71	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	180	U	180	1
10727	Hexachloroethane	67-72-1	36	U	36	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	18	U	18	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	18	U	18	1
10727	4-Methylphenol	106-44-5	18	U	18	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	18	U	18	1
10727	3-Nitroaniline	99-09-2	71	U	71	1
10727	4-Nitroaniline	100-01-6	71	U	71	1
10727	Nitrobenzene	98-95-3	110		18	1
10727	2-Nitrophenol	88-75-5	18	U	18	1
10727	4-Nitrophenol	100-02-7	180	U	180	1
10727	N-Nitroso-di-n-propylamine	621-64-7	18	U	18	1
10727	N-Nitrosodiphenylamine	86-30-6	18	U	18	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	71	U	71	1
10727	Pentachlorophenol	87-86-5	36	U	36	1
10727	Phenanthrene	85-01-8	10	J	4	1
10727	Phenol	108-95-2	18	U	18	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	18	U	18	1
10727	2,4,6-Trichlorophenol	88-06-2	18	U	18	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	65.8		0.0189	1
06949	Cadmium	7440-43-9	0.480	J	0.0210	1
06951	Chromium	7440-47-3	7.10		0.147	1
06955	Lead	7439-92-1	5.06		0.231	1
06936	Selenium	7782-49-2	0.713	U	0.713	1
06966	Silver	7440-22-4	0.0870	U	0.0870	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	8.57		0.0847	2

Sample Description: S17-SS02-0810-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500558
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 14:30 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S1723 SDG#: DHR10-16

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0071 U	0.0071	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	6.5	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	Q113562AA	12/23/2011 08:10	Sara E Johnson	1.05
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134926443	12/15/2011 12:41	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134926443	12/15/2011 12:42	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134926443	12/15/2011 12:41	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11353SLC026	12/21/2011 07:57	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11353SLC026	12/20/2011 13:00	Olivia I Santiago	1
06946	Barium	SW-846 6010B	1	113505708003	12/20/2011 22:49	John W Yanzuk II	1
06949	Cadmium	SW-846 6010B	1	113505708003	12/22/2011 21:47	John P Hook	1
06951	Chromium	SW-846 6010B	1	113505708003	12/20/2011 22:49	John W Yanzuk II	1
06955	Lead	SW-846 6010B	1	113505708003	12/22/2011 21:47	John P Hook	1
06936	Selenium	SW-846 6010B	1	113505708003	12/20/2011 22:49	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	113505708003	12/20/2011 22:49	John W Yanzuk II	1
06125	Arsenic	SW-846 6020	1	113501026002A	12/22/2011 16:08	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113505711003	12/19/2011 09:28	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113505708003	12/18/2011 19:56	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113501026002	12/18/2011 19:58	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113505711003	12/18/2011 23:10	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11350820002B	12/16/2011 18:29	Scott W Freisher	1

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Analysis Report

Sample Description: S17-SS02-1517-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500559
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 14:40 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S1724 SDG#: DHR10-17

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	19	J	8	1.05
10949	Benzene	71-43-2	0.6	U	0.6	1.05
10949	Bromobenzene	108-86-1	1	U	1	1.05
10949	Bromochloromethane	74-97-5	1	U	1	1.05
10949	Bromodichloromethane	75-27-4	1	U	1	1.05
10949	Bromoform	75-25-2	1	U	1	1.05
10949	Bromomethane	74-83-9	2	U	2	1.05
10949	2-Butanone	78-93-3	5	U	5	1.05
10949	n-Butylbenzene	104-51-8	1	U	1	1.05
10949	sec-Butylbenzene	135-98-8	1	U	1	1.05
10949	tert-Butylbenzene	98-06-6	1	U	1	1.05
10949	Carbon Disulfide	75-15-0	1	U	1	1.05
10949	Carbon Tetrachloride	56-23-5	1	U	1	1.05
10949	Chlorobenzene	108-90-7	1	U	1	1.05
10949	Chloroethane	75-00-3	2	U	2	1.05
10949	Chloroform	67-66-3	1	U	1	1.05
10949	Chloromethane	74-87-3	2	U	2	1.05
10949	2-Chlorotoluene	95-49-8	1	U	1	1.05
10949	4-Chlorotoluene	106-43-4	1	U	1	1.05
10949	Cyclohexane	110-82-7	1	U	1	1.05
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	1.05
10949	Dibromochloromethane	124-48-1	1	U	1	1.05
10949	1,2-Dibromoethane	106-93-4	1	U	1	1.05
10949	Dibromomethane	74-95-3	1	U	1	1.05
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	1.05
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	1.05
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	1.05
10949	Dichlorodifluoromethane	75-71-8	2	U	2	1.05
10949	1,1-Dichloroethane	75-34-3	1	U	1	1.05
10949	1,2-Dichloroethane	107-06-2	1	U	1	1.05
10949	1,1-Dichloroethene	75-35-4	1	U	1	1.05
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	1.05
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	1.05
10949	1,2-Dichloropropane	78-87-5	1	U	1	1.05
10949	1,3-Dichloropropane	142-28-9	1	U	1	1.05
10949	2,2-Dichloropropane	594-20-7	1	U	1	1.05
10949	1,1-Dichloropropene	563-58-6	1	U	1	1.05
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	1.05
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	1.05
10949	Ethylbenzene	100-41-4	1	U	1	1.05
10949	Freon 113	76-13-1	2	U	2	1.05
10949	Hexachlorobutadiene	87-68-3	2	U	2	1.05
10949	2-Hexanone	591-78-6	3	U	3	1.05
10949	Isopropylbenzene	98-82-8	1	U	1	1.05
10949	p-Isopropyltoluene	99-87-6	1	U	1	1.05
10949	Methyl Acetate	79-20-9	2	U	2	1.05
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.6	U	0.6	1.05
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	1.05
10949	Methylcyclohexane	108-87-2	1	U	1	1.05
10949	Methylene Chloride	75-09-2	2	U	2	1.05
10949	Naphthalene	91-20-3	1	U	1	1.05

Sample Description: S17-SS02-1517-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500559
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 14:40 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S1724 SDG#: DHR10-17

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	1.05
10949	Styrene	100-42-5	1	U	1	1.05
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	1.05
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	1.05
10949	Tetrachloroethene	127-18-4	1	U	1	1.05
10949	Toluene	108-88-3	1	U	1	1.05
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	1.05
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	1.05
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	1.05
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	1.05
10949	Trichloroethene	79-01-6	1	U	1	1.05
10949	Trichlorofluoromethane	75-69-4	2	U	2	1.05
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	1.05
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	1.05
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	1.05
10949	Vinyl Acetate	108-05-4	2	U	2	1.05
10949	Vinyl Chloride	75-01-4	1	U	1	1.05
10949	m+p-Xylene	179601-23-1	1	U	1	1.05
10949	o-Xylene	95-47-6	1	U	1	1.05

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 4-methyl-2-pentanone.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	J	4	1
10727	Anthracene	120-12-7	4	J	4	1
10727	Benzo(a)anthracene	56-55-3	7	J	4	1
10727	Benzo(a)pyrene	50-32-8	8	J	4	1
10727	Benzo(b)fluoranthene	205-99-2	11	J	4	1
10727	Benzo(g,h,i)perylene	191-24-2	10	J	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	180	U	180	1
10727	1,1'-Biphenyl	92-52-4	20	J	18	1
10727	4-Bromophenyl-phenylether	101-55-3	18	U	18	1
10727	Butylbenzylphthalate	85-68-7	72	U	72	1
10727	Di-n-butylphthalate	84-74-2	72	U	72	1
10727	Carbazole	86-74-8	18	U	18	1
10727	4-Chloro-3-methylphenol	59-50-7	18	U	18	1
10727	4-Chloroaniline	106-47-8	18	U	18	1
10727	bis(2-Chloroethoxy)methane	111-91-1	18	U	18	1
10727	bis(2-Chloroethyl)ether	111-44-4	18	U	18	1
10727	2-Chloronaphthalene	91-58-7	8	U	8	1
10727	2-Chlorophenol	95-57-8	18	U	18	1
10727	4-Chlorophenyl-phenylether	7005-72-3	18	U	18	1
10727	Chrysene	218-01-9	17	J	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	18	U	18	1
10727	3,3'-Dichlorobenzidine	91-94-1	110	U	110	1
10727	2,4-Dichlorophenol	120-83-2	18	U	18	1

Sample Description: S17-SS02-1517-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500559
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 14:40 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S1724 SDG#: DHR10-17

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Diethylphthalate	84-66-2	72	U	72	1
10727	2,4-Dimethylphenol	105-67-9	18	U	18	1
10727	Dimethylphthalate	131-11-3	72	U	72	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	180	U	180	1
10727	2,4-Dinitrophenol	51-28-5	360	U	360	1
10727	2,4-Dinitrotoluene	121-14-2	72	U	72	1
10727	2,6-Dinitrotoluene	606-20-2	18	U	18	1
10727	1,4-Dioxane	123-91-1	110	U	110	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	72	U	72	1
10727	Fluoranthene	206-44-0	15	J	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	180	U	180	1
10727	Hexachloroethane	67-72-1	36	U	36	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	7	J	4	1
10727	Isophorone	78-59-1	18	U	18	1
10727	2-Methylnaphthalene	91-57-6	28		4	1
10727	2-Methylphenol	95-48-7	18	U	18	1
10727	4-Methylphenol	106-44-5	18	U	18	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	18	U	18	1
10727	3-Nitroaniline	99-09-2	72	U	72	1
10727	4-Nitroaniline	100-01-6	72	U	72	1
10727	Nitrobenzene	98-95-3	18	U	18	1
10727	2-Nitrophenol	88-75-5	18	U	18	1
10727	4-Nitrophenol	100-02-7	180	U	180	1
10727	N-Nitroso-di-n-propylamine	621-64-7	18	U	18	1
10727	N-Nitrosodiphenylamine	86-30-6	18	U	18	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	72	U	72	1
10727	Pentachlorophenol	87-86-5	36	U	36	1
10727	Phenanthrene	85-01-8	39		4	1
10727	Phenol	108-95-2	18	U	18	1
10727	Pyrene	129-00-0	19		4	1
10727	2,4,5-Trichlorophenol	95-95-4	18	U	18	1
10727	2,4,6-Trichlorophenol	88-06-2	18	U	18	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	72.1		0.0191	1
06949	Cadmium	7440-43-9	0.653		0.0212	1
06951	Chromium	7440-47-3	22.7		0.149	1
06955	Lead	7439-92-1	5.02		0.234	1
06936	Selenium	7782-49-2	0.722	U	0.722	1
06966	Silver	7440-22-4	0.0882	U	0.0882	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	10.7		0.0850	2

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Analysis Report

Sample Description: S17-SS02-1517-121411 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6500559
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/14/2011 14:40 by OO

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S1724 SDG#: DHR10-17

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0074 U	0.0074	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	7.7	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	Q113562AA	12/23/2011 08:33	Sara E Johnson	1.05
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134926443	12/15/2011 12:43	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134926443	12/15/2011 12:43	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134926443	12/15/2011 12:42	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11350SLE026	12/19/2011 18:27	Matthew S Woods	1
10809	BNA Soil Microwave	SW-846 3546	1	11350SLE026	12/17/2011 11:30	Sally L Appleyard	1
06946	Barium	SW-846 6010B	1	113505708003	12/20/2011 22:53	John W Yanzuk II	1
06949	Cadmium	SW-846 6010B	1	113505708003	12/22/2011 21:51	John P Hook	1
06951	Chromium	SW-846 6010B	1	113505708003	12/20/2011 22:53	John W Yanzuk II	1
06955	Lead	SW-846 6010B	1	113505708003	12/22/2011 21:51	John P Hook	1
06936	Selenium	SW-846 6010B	1	113505708003	12/20/2011 22:53	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	113505708003	12/20/2011 22:53	John W Yanzuk II	1
06125	Arsenic	SW-846 6020	1	113501026002A	12/22/2011 16:09	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113505711003	12/19/2011 09:29	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113505708003	12/18/2011 19:56	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113501026002	12/18/2011 19:58	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113505711003	12/18/2011 23:10	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11350820002B	12/16/2011 18:29	Scott W Freisher	1

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Analysis Report

Sample Description: 121411TB Water Sample
Dow Hanging Rock, OH

LLI Sample # WW 6500560
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/01/2011

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S172T SDG#: DHR10-18TB*

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**		**ug/l**	
10904	Acetone	67-64-1	6	U	6	1
10904	Benzene	71-43-2	0.5	U	0.5	1
10904	Bromobenzene	108-86-1	1	U	1	1
10904	Bromochloromethane	74-97-5	1	U	1	1
10904	Bromodichloromethane	75-27-4	1	U	1	1
10904	Bromoform	75-25-2	1	U	1	1
10904	Bromomethane	74-83-9	1	U	1	1
10904	2-Butanone	78-93-3	3	U	3	1
10904	n-Butylbenzene	104-51-8	1	U	1	1
10904	sec-Butylbenzene	135-98-8	1	U	1	1
10904	tert-Butylbenzene	98-06-6	1	U	1	1
10904	Carbon Disulfide	75-15-0	1	U	1	1
10904	Carbon Tetrachloride	56-23-5	1	U	1	1
10904	Chlorobenzene	108-90-7	0.8	U	0.8	1
10904	Chloroethane	75-00-3	1	U	1	1
10904	Chloroform	67-66-3	0.8	U	0.8	1
10904	Chloromethane	74-87-3	1	U	1	1
10904	2-Chlorotoluene	95-49-8	1	U	1	1
10904	4-Chlorotoluene	106-43-4	1	U	1	1
10904	Cyclohexane	110-82-7	2	U	2	1
10904	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	1
10904	Dibromochloromethane	124-48-1	1	U	1	1
10904	1,2-Dibromoethane	106-93-4	1	U	1	1
10904	Dibromomethane	74-95-3	1	U	1	1
10904	1,2-Dichlorobenzene	95-50-1	1	U	1	1
10904	1,3-Dichlorobenzene	541-73-1	1	U	1	1
10904	1,4-Dichlorobenzene	106-46-7	1	U	1	1
10904	Dichlorodifluoromethane	75-71-8	2	U	2	1
10904	1,1-Dichloroethane	75-34-3	1	U	1	1
10904	1,2-Dichloroethane	107-06-2	1	U	1	1
10904	1,1-Dichloroethene	75-35-4	0.8	U	0.8	1
10904	cis-1,2-Dichloroethene	156-59-2	0.8	U	0.8	1
10904	trans-1,2-Dichloroethene	156-60-5	0.8	U	0.8	1
10904	1,2-Dichloropropane	78-87-5	1	U	1	1
10904	1,3-Dichloropropane	142-28-9	1	U	1	1
10904	2,2-Dichloropropane	594-20-7	1	U	1	1
10904	1,1-Dichloropropene	563-58-6	1	U	1	1
10904	cis-1,3-Dichloropropene	10061-01-5	1	U	1	1
10904	trans-1,3-Dichloropropene	10061-02-6	1	U	1	1
10904	Ethylbenzene	100-41-4	0.8	U	0.8	1
10904	Freon 113	76-13-1	2	U	2	1
10904	Hexachlorobutadiene	87-68-3	2	U	2	1
10904	2-Hexanone	591-78-6	3	U	3	1
10904	Isopropylbenzene	98-82-8	1	U	1	1
10904	p-Isopropyltoluene	99-87-6	1	U	1	1
10904	Methyl Acetate	79-20-9	1	U	1	1
10904	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	1
10904	4-Methyl-2-pentanone	108-10-1	3	U	3	1
10904	Methylcyclohexane	108-87-2	1	U	1	1
10904	Methylene Chloride	75-09-2	2	U	2	1
10904	Naphthalene	91-20-3	1	U	1	1

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Analysis Report

Sample Description: 121411TB Water Sample
Dow Hanging Rock, OH

LLI Sample # WW 6500560
LLI Group # 1281221
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/01/2011

Submitted: 12/15/2011 09:30
Reported: 01/04/2012 15:54

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S172T SDG#: DHR10-18TB*

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**		**ug/l**	
10904	n-Propylbenzene	103-65-1	1	U	1	1
10904	Styrene	100-42-5	1	U	1	1
10904	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	1
10904	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	1
10904	Tetrachloroethene	127-18-4	0.8	U	0.8	1
10904	Toluene	108-88-3	0.7	U	0.7	1
10904	1,2,3-Trichlorobenzene	87-61-6	1	U	1	1
10904	1,2,4-Trichlorobenzene	120-82-1	1	U	1	1
10904	1,1,1-Trichloroethane	71-55-6	0.8	U	0.8	1
10904	1,1,2-Trichloroethane	79-00-5	0.8	U	0.8	1
10904	Trichloroethene	79-01-6	1	U	1	1
10904	Trichlorofluoromethane	75-69-4	2	U	2	1
10904	1,2,3-Trichloropropane	96-18-4	1	U	1	1
10904	1,2,4-Trimethylbenzene	95-63-6	1	U	1	1
10904	1,3,5-Trimethylbenzene	108-67-8	1	U	1	1
10904	Vinyl Acetate	108-05-4	2	U	2	1
10904	Vinyl Chloride	75-01-4	1	U	1	1
10904	m+p-Xylene	179601-23-1	0.8	U	0.8	1
10904	o-Xylene	95-47-6	0.8	U	0.8	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10904	8260 Ext. Water Master	SW-846 8260B	1	Y113501AA	12/16/2011 05:59	Angela D Sneeringer	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	Y113501AA	12/16/2011 05:59	Angela D Sneeringer	1

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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1281221
Reported: 01/04/12 at 03:54 PM

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: Q113562AA	Sample number(s): 6500541-6500551,6500553-6500555,6500557-6500559								
Acetone	7	U	7.	ug/kg	81		32-209		
Benzene	0.5	U	0.5	ug/kg	92		80-120		
Bromobenzene	1	U	1.	ug/kg	90		79-120		
Bromochloromethane	1	U	1.	ug/kg	88		79-124		
Bromodichloromethane	1	U	1.	ug/kg	87		78-120		
Bromoform	1	U	1.	ug/kg	71		70-120		
Bromomethane	2	U	2.	ug/kg	79		32-162		
2-Butanone	4	U	4.	ug/kg	58		46-153		
n-Butylbenzene	1	U	1.	ug/kg	93		72-120		
sec-Butylbenzene	1	U	1.	ug/kg	92		75-120		
tert-Butylbenzene	1	U	1.	ug/kg	90		75-120		
Carbon Disulfide	1	U	1.	ug/kg	90		67-122		
Carbon Tetrachloride	1	U	1.	ug/kg	89		69-122		
Chlorobenzene	1	U	1.	ug/kg	92		80-120		
Chloroethane	2	U	2.	ug/kg	78		37-154		
Chloroform	1	U	1.	ug/kg	92		80-120		
Chloromethane	2	U	2.	ug/kg	75		54-132		
2-Chlorotoluene	1	U	1.	ug/kg	92		78-120		
4-Chlorotoluene	1	U	1.	ug/kg	92		79-120		
Cyclohexane	1	U	1.	ug/kg	87		62-121		
1,2-Dibromo-3-chloropropane	2	U	2.	ug/kg	65		58-120		
Dibromochloromethane	1	U	1.	ug/kg	83		77-120		
1,2-Dibromoethane	1	U	1.	ug/kg	85		80-120		
Dibromomethane	1	U	1.	ug/kg	86		80-120		
1,2-Dichlorobenzene	1	U	1.	ug/kg	90		79-120		
1,3-Dichlorobenzene	1	U	1.	ug/kg	90		78-120		
1,4-Dichlorobenzene	1	U	1.	ug/kg	91		79-120		
Dichlorodifluoromethane	2	U	2.	ug/kg	68		20-120		
1,1-Dichloroethane	1	U	1.	ug/kg	93		80-120		
1,2-Dichloroethane	1	U	1.	ug/kg	90		71-129		
1,1-Dichloroethene	1	U	1.	ug/kg	91		73-123		
cis-1,2-Dichloroethene	1	U	1.	ug/kg	94		80-120		
trans-1,2-Dichloroethene	1	U	1.	ug/kg	92		79-120		
1,2-Dichloropropane	1	U	1.	ug/kg	92		80-120		
1,3-Dichloropropane	1	U	1.	ug/kg	86		80-120		
2,2-Dichloropropane	1	U	1.	ug/kg	85		72-123		
1,1-Dichloropropene	1	U	1.	ug/kg	90		77-120		
cis-1,3-Dichloropropene	1	U	1.	ug/kg	86		80-120		
trans-1,3-Dichloropropene	1	U	1.	ug/kg	83		77-120		
Ethylbenzene	1	U	1.	ug/kg	94		80-120		
Freon 113	2	U	2.	ug/kg	87		61-126		
Hexachlorobutadiene	2	U	2.	ug/kg	88		57-120		
2-Hexanone	3	U	3.	ug/kg	50		45-155		
Isopropylbenzene	1	U	1.	ug/kg	94		76-120		
p-Isopropyltoluene	1	U	1.	ug/kg	94		75-120		

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1281221
Reported: 01/04/12 at 03:54 PM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Methyl Acetate	2	U	2.	ug/kg	87		61-152		
Methyl Tertiary Butyl Ether	0.5	U	0.5	ug/kg	86		74-121		
4-Methyl-2-pentanone	3	U	3.	ug/kg	60*		61-134		
Methylcyclohexane	1	U	1.	ug/kg	91		57-138		
Methylene Chloride	2	U	2.	ug/kg	92		76-124		
Naphthalene	1	U	1.	ug/kg	78		59-123		
n-Propylbenzene	1	U	1.	ug/kg	94		77-120		
Styrene	1	U	1.	ug/kg	93		76-120		
1,1,1,2-Tetrachloroethane	1	U	1.	ug/kg	89		80-120		
1,1,2,2-Tetrachloroethane	1	U	1.	ug/kg	75		71-123		
Tetrachloroethene	1	U	1.	ug/kg	92		77-120		
Toluene	1	U	1.	ug/kg	94		80-120		
1,2,3-Trichlorobenzene	1	U	1.	ug/kg	89		64-120		
1,2,4-Trichlorobenzene	1	U	1.	ug/kg	90		68-120		
1,1,1-Trichloroethane	1	U	1.	ug/kg	89		71-125		
1,1,2-Trichloroethane	1	U	1.	ug/kg	85		80-120		
Trichloroethene	1	U	1.	ug/kg	93		80-120		
Trichlorofluoromethane	2	U	2.	ug/kg	85		58-133		
1,2,3-Trichloropropane	1	U	1.	ug/kg	73		71-123		
1,2,4-Trimethylbenzene	1	U	1.	ug/kg	94		79-120		
1,3,5-Trimethylbenzene	1	U	1.	ug/kg	94		78-120		
Vinyl Acetate	2	U	2.	ug/kg	90		56-137		
Vinyl Chloride	1	U	1.	ug/kg	80		53-120		
m+p-Xylene	1	U	1.	ug/kg	94		80-120		
o-Xylene	1	U	1.	ug/kg	94		80-120		
Batch number: R113571AA	Sample number(s): 6500540								
Acetone	350	U	350.	ug/kg	70	65	32-209	7	30
Benzene	25	U	25.	ug/kg	103	101	80-120	2	30
Bromobenzene	50	U	50.	ug/kg	98	98	79-120	0	30
Bromochloromethane	50	U	50.	ug/kg	109	106	79-124	3	30
Bromodichloromethane	50	U	50.	ug/kg	91	89	78-120	2	30
Bromoform	50	U	50.	ug/kg	80	79	70-120	2	30
Bromomethane	100	U	100.	ug/kg	94	89	32-162	5	30
2-Butanone	200	U	200.	ug/kg	74	70	46-153	6	30
n-Butylbenzene	50	U	50.	ug/kg	87	92	72-120	6	30
sec-Butylbenzene	50	U	50.	ug/kg	87	91	75-120	4	30
tert-Butylbenzene	50	U	50.	ug/kg	88	89	75-120	2	30
Carbon Disulfide	50	U	50.	ug/kg	111	105	67-122	5	30
Carbon Tetrachloride	50	U	50.	ug/kg	88	87	69-122	1	30
Chlorobenzene	50	U	50.	ug/kg	95	94	80-120	1	30
Chloroethane	100	U	100.	ug/kg	149	146	37-154	2	30
Chloroform	50	U	50.	ug/kg	96	93	80-120	4	30
Chloromethane	100	U	100.	ug/kg	82	79	54-132	4	30
2-Chlorotoluene	50	U	50.	ug/kg	96	95	78-120	1	30
4-Chlorotoluene	50	U	50.	ug/kg	96	96	79-120	0	30
Cyclohexane	50	U	50.	ug/kg	92	84	62-121	8	30
1,2-Dibromo-3-chloropropane	100	U	100.	ug/kg	70	72	58-120	2	30
Dibromochloromethane	50	U	50.	ug/kg	89	88	77-120	2	30
1,2-Dibromoethane	50	U	50.	ug/kg	94	93	80-120	1	30
Dibromomethane	50	U	50.	ug/kg	100	95	80-120	5	30
1,2-Dichlorobenzene	50	U	50.	ug/kg	92	93	79-120	1	30
1,3-Dichlorobenzene	50	U	50.	ug/kg	92	93	78-120	1	30
1,4-Dichlorobenzene	50	U	50.	ug/kg	93	93	79-120	0	30
Dichlorodifluoromethane	100	U	100.	ug/kg	62	52	20-120	19	30
1,1-Dichloroethane	50	U	50.	ug/kg	107	102	80-120	5	30
1,2-Dichloroethane	50	U	50.	ug/kg	92	91	71-129	1	30
1,1-Dichloroethene	50	U	50.	ug/kg	112	105	73-123	7	30

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1281221
Reported: 01/04/12 at 03:54 PM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
cis-1,2-Dichloroethene	50	U	50.	ug/kg	104	99	80-120	5	30
trans-1,2-Dichloroethene	50	U	50.	ug/kg	109	101	79-120	7	30
1,2-Dichloropropane	50	U	50.	ug/kg	103	100	80-120	3	30
1,3-Dichloropropane	50	U	50.	ug/kg	97	96	80-120	1	30
2,2-Dichloropropane	50	U	50.	ug/kg	95	90	72-123	5	30
1,1-Dichloropropene	50	U	50.	ug/kg	95	92	77-120	3	30
cis-1,3-Dichloropropene	50	U	50.	ug/kg	96	93	80-120	2	30
trans-1,3-Dichloropropene	50	U	50.	ug/kg	93	92	77-120	1	30
Ethylbenzene	50	U	50.	ug/kg	89	88	80-120	1	30
Freon 113	100	U	100.	ug/kg	104	94	61-126	10	30
Hexachlorobutadiene	100	U	100.	ug/kg	67	72	57-120	7	30
2-Hexanone	150	U	150.	ug/kg	71	68	45-155	4	30
Isopropylbenzene	50	U	50.	ug/kg	81	80	76-120	1	30
p-Isopropyltoluene	50	U	50.	ug/kg	86	88	75-120	3	30
Methyl Acetate	100	U	100.	ug/kg	123	119	61-152	4	30
Methyl Tertiary Butyl Ether	25	U	25.	ug/kg	102	98	74-121	4	30
4-Methyl-2-pentanone	150	U	150.	ug/kg	85	84	61-134	2	30
Methylcyclohexane	50	U	50.	ug/kg	89	82	57-138	7	30
Methylene Chloride	100	U	100.	ug/kg	111	107	76-124	4	30
Naphthalene	50	U	50.	ug/kg	69	72	59-123	5	30
n-Propylbenzene	50	U	50.	ug/kg	93	93	77-120	0	30
Styrene	50	U	50.	ug/kg	88	86	76-120	2	30
1,1,1,2-Tetrachloroethane	50	U	50.	ug/kg	89	89	80-120	1	30
1,1,2,2-Tetrachloroethane	50	U	50.	ug/kg	96	97	71-123	1	30
Tetrachloroethene	50	U	50.	ug/kg	90	87	77-120	3	30
Toluene	50	U	50.	ug/kg	98	96	80-120	2	30
1,2,3-Trichlorobenzene	50	U	50.	ug/kg	68	78	64-120	13	30
1,2,4-Trichlorobenzene	50	U	50.	ug/kg	74	81	68-120	9	30
1,1,1-Trichloroethane	50	U	50.	ug/kg	96	91	71-125	5	30
1,1,2-Trichloroethane	50	U	50.	ug/kg	97	95	80-120	2	30
Trichloroethene	50	U	50.	ug/kg	97	94	80-120	3	30
Trichlorofluoromethane	100	U	100.	ug/kg	80	72	58-133	10	30
1,2,3-Trichloropropane	50	U	50.	ug/kg	93	94	71-123	1	30
1,2,4-Trimethylbenzene	50	U	50.	ug/kg	88	89	79-120	1	30
1,3,5-Trimethylbenzene	50	U	50.	ug/kg	88	89	78-120	1	30
Vinyl Acetate	100	U	100.	ug/kg	105	108	56-137	3	30
Vinyl Chloride	50	U	50.	ug/kg	83	80	53-120	4	30
m+p-Xylene	50	U	50.	ug/kg	91	89	80-120	2	30
o-Xylene	50	U	50.	ug/kg	91	89	80-120	2	30
Batch number: Y113501AA	Sample number(s): 6500560								
Acetone	6	U	6.	ug/l	155	137	49-234	13	30
Benzene	0.5	U	0.5	ug/l	106	106	79-120	0	30
Bromobenzene	1	U	1.	ug/l	111	109	80-120	1	30
Bromochloromethane	1	U	1.	ug/l	94	96	80-120	1	30
Bromodichloromethane	1	U	1.	ug/l	92	91	80-120	1	30
Bromoform	1	U	1.	ug/l	88	87	61-120	1	30
Bromomethane	1	U	1.	ug/l	78	73	44-120	6	30
2-Butanone	3	U	3.	ug/l	127	120	66-151	6	30
n-Butylbenzene	1	U	1.	ug/l	116	117	74-120	1	30
sec-Butylbenzene	1	U	1.	ug/l	119	119	78-120	0	30
tert-Butylbenzene	1	U	1.	ug/l	102	103	80-120	1	30
Carbon Disulfide	1	U	1.	ug/l	89	90	62-120	1	30
Carbon Tetrachloride	1	U	1.	ug/l	85	84	75-123	1	30
Chlorobenzene	0.8	U	0.8	ug/l	101	101	80-120	0	30
Chloroethane	1	U	1.	ug/l	75	72	49-129	5	30
Chloroform	0.8	U	0.8	ug/l	100	100	77-122	0	30
Chloromethane	1	U	1.	ug/l	98	98	60-129	0	30

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1281221
Reported: 01/04/12 at 03:54 PM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
2-Chlorotoluene	1	U	1.	ug/l	113	112	80-120	1	30
4-Chlorotoluene	1	U	1.	ug/l	110	107	80-120	2	30
Cyclohexane	2	U	2.	ug/l	107	105	65-125	2	30
1,2-Dibromo-3-chloropropane	2	U	2.	ug/l	113	111	56-126	2	30
Dibromochloromethane	1	U	1.	ug/l	95	93	80-120	2	30
1,2-Dibromoethane	1	U	1.	ug/l	104	104	80-120	0	30
Dibromomethane	1	U	1.	ug/l	96	95	80-120	1	30
1,2-Dichlorobenzene	1	U	1.	ug/l	106	105	80-120	1	30
1,3-Dichlorobenzene	1	U	1.	ug/l	110	110	80-120	0	30
1,4-Dichlorobenzene	1	U	1.	ug/l	109	107	80-120	2	30
Dichlorodifluoromethane	2	U	2.	ug/l	77	77	47-120	0	30
1,1-Dichloroethane	1	U	1.	ug/l	101	101	79-120	1	30
1,2-Dichloroethane	1	U	1.	ug/l	94	93	70-130	1	30
1,1-Dichloroethene	0.8	U	0.8	ug/l	94	94	74-123	0	30
cis-1,2-Dichloroethene	0.8	U	0.8	ug/l	101	102	80-120	1	30
trans-1,2-Dichloroethene	0.8	U	0.8	ug/l	99	100	80-120	0	30
1,2-Dichloropropane	1	U	1.	ug/l	104	104	78-120	0	30
1,3-Dichloropropane	1	U	1.	ug/l	107	106	80-120	1	30
2,2-Dichloropropane	1	U	1.	ug/l	87	89	77-124	2	30
1,1-Dichloropropene	1	U	1.	ug/l	99	98	80-120	1	30
cis-1,3-Dichloropropene	1	U	1.	ug/l	97	97	80-120	0	30
trans-1,3-Dichloropropene	1	U	1.	ug/l	97	98	79-120	1	30
Ethylbenzene	0.8	U	0.8	ug/l	103	103	79-120	0	30
Freon 113	2	U	2.	ug/l	97	92	69-128	5	30
Hexachlorobutadiene	2	U	2.	ug/l	96	97	58-120	1	30
2-Hexanone	3	U	3.	ug/l	117	114	65-136	3	30
Isopropylbenzene	1	U	1.	ug/l	101	100	77-120	1	30
p-Isopropyltoluene	1	U	1.	ug/l	112	112	80-120	0	30
Methyl Acetate	1	U	1.	ug/l	135	132	64-151	2	30
Methyl Tertiary Butyl Ether	0.5	U	0.5	ug/l	101	101	76-120	1	30
4-Methyl-2-pentanone	3	U	3.	ug/l	108	107	70-121	1	30
Methylcyclohexane	1	U	1.	ug/l	106	105	71-132	0	30
Methylene Chloride	2	U	2.	ug/l	113	114	80-120	2	30
Naphthalene	1	U	1.	ug/l	107	107	62-120	0	30
n-Propylbenzene	1	U	1.	ug/l	124*	124*	80-120	0	30
Styrene	1	U	1.	ug/l	96	94	80-120	1	30
1,1,1,2-Tetrachloroethane	1	U	1.	ug/l	93	93	80-120	0	30
1,1,2,2-Tetrachloroethane	1	U	1.	ug/l	128*	125*	71-120	2	30
Tetrachloroethene	0.8	U	0.8	ug/l	93	92	80-121	0	30
Toluene	0.7	U	0.7	ug/l	107	107	79-120	0	30
1,2,3-Trichlorobenzene	1	U	1.	ug/l	104	104	65-120	0	30
1,2,4-Trichlorobenzene	1	U	1.	ug/l	101	101	67-120	0	30
1,1,1-Trichloroethane	0.8	U	0.8	ug/l	90	91	75-127	1	30
1,1,2-Trichloroethane	0.8	U	0.8	ug/l	107	106	80-120	1	30
Trichloroethene	1	U	1.	ug/l	99	97	80-120	2	30
Trichlorofluoromethane	2	U	2.	ug/l	84	82	64-129	2	30
1,2,3-Trichloropropane	1	U	1.	ug/l	119	118	80-120	1	30
1,2,4-Trimethylbenzene	1	U	1.	ug/l	117	118	74-120	1	30
1,3,5-Trimethylbenzene	1	U	1.	ug/l	115	114	75-120	1	30
Vinyl Acetate	2	U	2.	ug/l	103	103	57-147	0	30
Vinyl Chloride	1	U	1.	ug/l	88	88	65-125	1	30
m+p-Xylene	0.8	U	0.8	ug/l	99	99	80-120	0	30
o-Xylene	0.8	U	0.8	ug/l	97	97	80-120	0	30
Batch number: 11350SLE026	Sample number(s): 6500540-6500551,6500553-6500555,6500557,6500559								
Acenaphthene	3	U	3.	ug/kg	93		83-111		
Acenaphthylene	3	U	3.	ug/kg	102		68-120		
Anthracene	3	U	3.	ug/kg	94		83-111		

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(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1281221
Reported: 01/04/12 at 03:54 PM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Benzo(a)anthracene	3	U	3.	ug/kg	88		82-111		
Benzo(a)pyrene	3	U	3.	ug/kg	98		63-138		
Benzo(b)fluoranthene	3	U	3.	ug/kg	96		61-133		
Benzo(g,h,i)perylene	3	U	3.	ug/kg	88		63-130		
Benzo(k)fluoranthene	3	U	3.	ug/kg	100		71-135		
Benzyl alcohol	170	U	170.	ug/kg	88		68-111		
1,1'-Biphenyl	17	U	17.	ug/kg	93		82-106		
4-Bromophenyl-phenylether	17	U	17.	ug/kg	92		79-117		
Butylbenzylphthalate	67	U	67.	ug/kg	93		77-125		
Di-n-butylphthalate	67	U	67.	ug/kg	95		79-112		
Carbazole	17	U	17.	ug/kg	91		83-111		
4-Chloro-3-methylphenol	17	U	17.	ug/kg	94		74-119		
4-Chloroaniline	17	U	17.	ug/kg	21		10-97		
bis(2-Chloroethoxy)methane	17	U	17.	ug/kg	95		82-113		
bis(2-Chloroethyl)ether	17	U	17.	ug/kg	90		77-115		
2-Chloronaphthalene	7	U	7.	ug/kg	102		50-117		
2-Chlorophenol	17	U	17.	ug/kg	91		83-119		
4-Chlorophenyl-phenylether	17	U	17.	ug/kg	94		79-110		
Chrysene	3	U	3.	ug/kg	89		81-111		
Dibenz(a,h)anthracene	3	U	3.	ug/kg	91		67-129		
Dibenzofuran	17	U	17.	ug/kg	93		85-110		
3,3'-Dichlorobenzidine	100	U	100.	ug/kg	31		17-116		
2,4-Dichlorophenol	17	U	17.	ug/kg	96		87-117		
Diethylphthalate	67	U	67.	ug/kg	96		82-113		
2,4-Dimethylphenol	17	U	17.	ug/kg	94		83-120		
Dimethylphthalate	67	U	67.	ug/kg	97		85-111		
4,6-Dinitro-2-methylphenol	170	U	170.	ug/kg	74		60-113		
2,4-Dinitrophenol	330	U	330.	ug/kg	55		39-126		
2,4-Dinitrotoluene	67	U	67.	ug/kg	97		80-116		
2,6-Dinitrotoluene	17	U	17.	ug/kg	99		79-115		
1,4-Dioxane	100	U	100.	ug/kg	57		38-75		
bis(2-Ethylhexyl)phthalate	67	U	67.	ug/kg	90		75-124		
Fluoranthene	3	U	3.	ug/kg	92		80-113		
Fluorene	3	U	3.	ug/kg	97		81-117		
Hexachlorobenzene	3	U	3.	ug/kg	88		79-115		
Hexachlorocyclopentadiene	170	U	170.	ug/kg	100		64-127		
Hexachloroethane	33	U	33.	ug/kg	86		76-109		
Indeno(1,2,3-cd)pyrene	3	U	3.	ug/kg	90		64-128		
Isophorone	17	U	17.	ug/kg	92		72-107		
2-Methylnaphthalene	3	U	3.	ug/kg	90		79-110		
2-Methylphenol	17	U	17.	ug/kg	93		80-119		
4-Methylphenol	17	U	17.	ug/kg	92		74-116		
2-Nitroaniline	17	U	17.	ug/kg	96		83-118		
3-Nitroaniline	67	U	67.	ug/kg	87		66-114		
4-Nitroaniline	67	U	67.	ug/kg	64		52-92		
Nitrobenzene	17	U	17.	ug/kg	93		78-122		
2-Nitrophenol	17	U	17.	ug/kg	91		81-114		
4-Nitrophenol	170	U	170.	ug/kg	81		57-131		
N-Nitroso-di-n-propylamine	17	U	17.	ug/kg	83		70-113		
N-Nitrosodiphenylamine	17	U	17.	ug/kg	96		86-112		
Di-n-octylphthalate	67	U	67.	ug/kg	103		65-141		
Pentachlorophenol	33	U	33.	ug/kg	85		50-133		
Phenanthrene	3	U	3.	ug/kg	92		83-109		
Phenol	17	U	17.	ug/kg	89		74-115		
Pyrene	3	U	3.	ug/kg	91		80-121		
2,4,5-Trichlorophenol	17	U	17.	ug/kg	95		84-109		
2,4,6-Trichlorophenol	17	U	17.	ug/kg	96		88-114		

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(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1281221
Reported: 01/04/12 at 03:54 PM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 11353SLC026	Sample number(s): 6500558								
Acenaphthene	3	U	3.	ug/kg	92		83-111		
Acenaphthylene	3	U	3.	ug/kg	105		68-120		
Anthracene	3	U	3.	ug/kg	97		83-111		
Benzo(a)anthracene	3	U	3.	ug/kg	90		82-111		
Benzo(a)pyrene	3	U	3.	ug/kg	100		63-138		
Benzo(b)fluoranthene	3	U	3.	ug/kg	105		61-133		
Benzo(g,h,i)perylene	3	U	3.	ug/kg	96		63-130		
Benzo(k)fluoranthene	3	U	3.	ug/kg	96		71-135		
Benzyl alcohol	170	U	170.	ug/kg	93		68-111		
1,1'-Biphenyl	17	U	17.	ug/kg	93		82-106		
4-Bromophenyl-phenylether	17	U	17.	ug/kg	90		79-117		
Butylbenzylphthalate	67	U	67.	ug/kg	92		77-125		
Di-n-butylphthalate	67	U	67.	ug/kg	99		79-112		
Carbazole	17	U	17.	ug/kg	95		83-111		
4-Chloro-3-methylphenol	17	U	17.	ug/kg	90		74-119		
4-Chloroaniline	17	U	17.	ug/kg	38		10-97		
bis(2-Chloroethoxy)methane	17	U	17.	ug/kg	90		82-113		
bis(2-Chloroethyl)ether	17	U	17.	ug/kg	93		77-115		
2-Chloronaphthalene	7	U	7.	ug/kg	92		50-117		
2-Chlorophenol	17	U	17.	ug/kg	96		83-119		
4-Chlorophenyl-phenylether	17	U	17.	ug/kg	92		79-110		
Chrysene	3	U	3.	ug/kg	88		81-111		
Dibenz(a,h)anthracene	3	U	3.	ug/kg	93		67-129		
Dibenzofuran	17	U	17.	ug/kg	91		85-110		
3,3'-Dichlorobenzidine	100	U	100.	ug/kg	43		17-116		
2,4-Dichlorophenol	17	U	17.	ug/kg	92		87-117		
Diethylphthalate	67	U	67.	ug/kg	95		82-113		
2,4-Dimethylphenol	17	U	17.	ug/kg	95		83-120		
Dimethylphthalate	67	U	67.	ug/kg	95		85-111		
4,6-Dinitro-2-methylphenol	170	U	170.	ug/kg	91		60-113		
2,4-Dinitrophenol	330	U	330.	ug/kg	77		39-126		
2,4-Dinitrotoluene	67	U	67.	ug/kg	94		80-116		
2,6-Dinitrotoluene	17	U	17.	ug/kg	101		79-115		
1,4-Dioxane	100	U	100.	ug/kg	54		38-75		
bis(2-Ethylhexyl)phthalate	67	U	67.	ug/kg	90		75-124		
Fluoranthene	3	U	3.	ug/kg	100		80-113		
Fluorene	3	U	3.	ug/kg	96		81-117		
Hexachlorobenzene	3	U	3.	ug/kg	94		79-115		
Hexachlorocyclopentadiene	170	U	170.	ug/kg	81		64-127		
Hexachloroethane	33	U	33.	ug/kg	94		76-109		
Indeno(1,2,3-cd)pyrene	3	U	3.	ug/kg	95		64-128		
Isophorone	17	U	17.	ug/kg	91		72-107		
2-Methylnaphthalene	3	U	3.	ug/kg	89		79-110		
2-Methylphenol	17	U	17.	ug/kg	95		80-119		
4-Methylphenol	17	U	17.	ug/kg	87		74-116		
2-Nitroaniline	17	U	17.	ug/kg	95		83-118		
3-Nitroaniline	67	U	67.	ug/kg	88		66-114		
4-Nitroaniline	67	U	67.	ug/kg	67		52-92		
Nitrobenzene	17	U	17.	ug/kg	95		78-122		
2-Nitrophenol	17	U	17.	ug/kg	89		81-114		
4-Nitrophenol	170	U	170.	ug/kg	89		57-131		
N-Nitroso-di-n-propylamine	17	U	17.	ug/kg	87		70-113		
N-Nitrosodiphenylamine	17	U	17.	ug/kg	96		86-112		
Di-n-octylphthalate	67	U	67.	ug/kg	101		65-141		
Pentachlorophenol	33	U	33.	ug/kg	91		50-133		
Phenanthrene	3	U	3.	ug/kg	95		83-109		
Phenol	17	U	17.	ug/kg	93		74-115		

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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1281221
Reported: 01/04/12 at 03:54 PM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Pyrene	3	U	3.	ug/kg	93		80-121		
2,4,5-Trichlorophenol	17	U	17.	ug/kg	97		84-109		
2,4,6-Trichlorophenol	17	U	17.	ug/kg	94		88-114		
Batch number: 11353WAA026	Sample number(s): 6500552								
Acenaphthene	0.1	U	0.1	ug/l	102	101	75-114	1	30
Acenaphthylene	0.1	U	0.1	ug/l	110	109	80-122	1	30
Anthracene	0.1	U	0.1	ug/l	102	104	76-115	2	30
Benzo(a)anthracene	0.1	U	0.1	ug/l	97	97	75-116	0	30
Benzo(a)pyrene	0.1	U	0.1	ug/l	108	108	64-126	0	30
Benzo(b)fluoranthene	0.1	U	0.1	ug/l	107	109	66-125	2	30
Benzo(g,h,i)perylene	0.1	U	0.1	ug/l	103	105	66-132	2	30
Benzo(k)fluoranthene	0.1	U	0.1	ug/l	110	109	66-131	1	30
Benzyl alcohol	5	U	5.	ug/l	79	77	66-97	2	30
1,1'-Biphenyl	0.5	U	0.5	ug/l	100	100	80-109	0	30
4-Bromophenyl-phenylether	0.5	U	0.5	ug/l	101	103	75-115	2	30
Butylbenzylphthalate	2	U	2.	ug/l	104	104	77-115	0	30
Di-n-butylphthalate	2	U	2.	ug/l	102	106	76-115	4	30
Carbazole	0.5	U	0.5	ug/l	99	102	75-120	3	30
4-Chloro-3-methylphenol	0.5	U	0.5	ug/l	101	102	70-123	0	30
4-Chloroaniline	0.5	U	0.5	ug/l	51	70	24-128	32*	30
bis(2-Chloroethoxy)methane	0.5	U	0.5	ug/l	104	107	74-124	3	30
bis(2-Chloroethyl)ether	0.5	U	0.5	ug/l	104	103	77-108	1	30
2-Chloronaphthalene	0.4	U	0.4	ug/l	98	99	54-132	1	30
2-Chlorophenol	0.5	U	0.5	ug/l	96	96	71-114	0	30
4-Chlorophenyl-phenylether	0.5	U	0.5	ug/l	102	102	77-114	0	30
Chrysene	0.1	U	0.1	ug/l	101	101	76-116	1	30
Dibenz(a,h)anthracene	0.1	U	0.1	ug/l	104	106	67-131	1	30
Dibenzofuran	0.5	U	0.5	ug/l	102	101	75-117	1	30
3,3'-Dichlorobenzidine	2	U	2.	ug/l	56	67	37-117	16	30
2,4-Dichlorophenol	0.5	U	0.5	ug/l	103	104	77-117	1	30
Diethylphthalate	2	U	2.	ug/l	104	104	66-116	0	30
2,4-Dimethylphenol	0.5	U	0.5	ug/l	100	102	72-110	2	30
Dimethylphthalate	2	U	2.	ug/l	104	103	39-126	0	30
4,6-Dinitro-2-methylphenol	5	U	5.	ug/l	98	102	65-126	4	30
2,4-Dinitrophenol	10	U	10.	ug/l	91	91	52-131	0	30
2,4-Dinitrotoluene	1	U	1.	ug/l	105	105	76-119	0	30
2,6-Dinitrotoluene	0.5	U	0.5	ug/l	106	106	76-118	0	30
1,4-Dioxane	1	U	1.	ug/l	46	45	32-78	2	30
bis(2-Ethylhexyl)phthalate	2	U	2.	ug/l	102	103	78-117	1	30
Fluoranthene	0.1	U	0.1	ug/l	99	103	76-119	4	30
Fluorene	0.1	U	0.1	ug/l	105	104	76-116	1	30
Hexachlorobenzene	0.1	U	0.1	ug/l	97	99	75-119	1	30
Hexachlorocyclopentadiene	5	U	5.	ug/l	82	84	36-118	2	30
Hexachloroethane	1	U	1.	ug/l	87	89	52-113	2	30
Indeno(1,2,3-cd)pyrene	0.1	U	0.1	ug/l	104	105	69-121	1	30
Isophorone	0.5	U	0.5	ug/l	104	105	74-117	1	30
2-Methylnaphthalene	0.1	U	0.1	ug/l	99	101	69-108	2	30
2-Methylphenol	0.5	U	0.5	ug/l	97	95	58-110	2	30
4-Methylphenol	0.5	U	0.5	ug/l	92	90	49-108	2	30
2-Nitroaniline	0.5	U	0.5	ug/l	106	104	75-120	2	30
3-Nitroaniline	0.5	U	0.5	ug/l	97	98	74-113	1	30
4-Nitroaniline	0.5	U	0.5	ug/l	67	68	59-100	2	30
Nitrobenzene	0.5	U	0.5	ug/l	100	103	75-109	3	30
2-Nitrophenol	0.5	U	0.5	ug/l	99	103	76-118	4	30
4-Nitrophenol	10	U	10.	ug/l	38	36	16-78	6	30
N-Nitroso-di-n-propylamine	0.5	U	0.5	ug/l	100	100	69-110	0	30
N-Nitrosodiphenylamine	0.5	U	0.5	ug/l	103	105	67-136	2	30

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1281221
Reported: 01/04/12 at 03:54 PM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Di-n-octylphthalate	2	U	2.	ug/l	114	115	68-128	1	30
Pentachlorophenol	1	U	1.	ug/l	93	95	53-110	2	30
Phenanthrene	0.1	U	0.1	ug/l	100	102	76-113	2	30
Phenol	0.5	U	0.5	ug/l	47	46	21-67	1	30
Pyrene	0.1	U	0.1	ug/l	101	99	75-119	1	30
2,4,5-Trichlorophenol	0.5	U	0.5	ug/l	102	102	79-107	1	30
2,4,6-Trichlorophenol	0.5	U	0.5	ug/l	102	102	76-120	1	30
Batch number: 113501026002A	Sample number(s): 6500540-6500551,6500553-6500559								
Arsenic	0.0800	U	0.0800	mg/kg	109		83-111		
Batch number: 113505708003	Sample number(s): 6500540-6500551,6500553-6500559								
Barium	0.0180	U	0.0180	mg/kg	101		89-112		
Cadmium	0.0200	U	0.0200	mg/kg	101		88-117		
Chromium	0.140	U	0.140	mg/kg	104		80-111		
Lead	0.220	U	0.220	mg/kg	99		90-115		
Selenium	0.680	U	0.680	mg/kg	102		83-111		
Silver	0.0830	U	0.0830	mg/kg	104		86-112		
Batch number: 113505711003	Sample number(s): 6500540-6500551,6500553-6500559								
Mercury	0.0069	U	0.0069	mg/kg	102		83-119		
Batch number: 113536050003A	Sample number(s): 6500552								
Arsenic	0.00095	U	0.00095	mg/l	98		86-111		
Batch number: 113555705002	Sample number(s): 6500552								
Barium	0.00026	U	0.00026	mg/l	103		90-110		
Cadmium	0.00027	U	0.00027	mg/l	105		90-112		
Chromium	0.0011	U	0.0011	mg/l	102		90-110		
Lead	0.0022	U	0.0022	mg/l	107		88-110		
Selenium	0.0069	U	0.0069	mg/l	103		80-120		
Silver	0.00091	U	0.00091	mg/l	97		83-120		
Batch number: 113565713002	Sample number(s): 6500552								
Mercury	0.000026	U	0.00002 6	mg/l	92		80-120		
Batch number: 11350820002A	Sample number(s): 6500540-6500551								
Moisture					100		99-101		
Batch number: 11350820002B	Sample number(s): 6500553-6500559								
Moisture					100		99-101		
Moisture					100		99-101		
Moisture Duplicate					100		99-101		

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: Q113562AA	Sample number(s): 6500541-6500551,6500553-6500555,6500557-6500559 UNSPK: 6500553								
Acetone	127	75	31-195	44*	30				

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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1281221
Reported: 01/04/12 at 03:54 PM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Benzene	74	91	55-143	9	30				
Bromobenzene	65	89	43-139	21	30				
Bromochloromethane	80	95	60-137	6	30				
Bromodichloromethane	72	89	53-136	9	30				
Bromoform	64	83	38-124	15	30				
Bromomethane	63	69	42-168	2	30				
2-Butanone	91	81	37-163	22	30				
n-Butylbenzene	62	89	30-146	26	30				
sec-Butylbenzene	66	94	33-157	25	30				
tert-Butylbenzene	65	91	41-152	23	30				
Carbon Disulfide	76	92	48-146	8	30				
Carbon Tetrachloride	70	89	45-153	13	30				
Chlorobenzene	69	89	49-135	14	30				
Chloroethane	56	69	39-152	10	30				
Chloroform	75	93	61-142	11	30				
Chloromethane	52	56	51-163	2	30				
2-Chlorotoluene	65	91	42-146	22	30				
4-Chlorotoluene	65	91	39-145	23	30				
Cyclohexane	72	94	57-151	16	30				
1,2-Dibromo-3-chloropropane	73	95	30-139	16	30				
Dibromochloromethane	71	87	51-128	8	30				
1,2-Dibromoethane	79	96	54-129	9	30				
Dibromomethane	79	95	57-130	8	30				
1,2-Dichlorobenzene	60	87	36-133	25	30				
1,3-Dichlorobenzene	61	86	34-134	23	30				
1,4-Dichlorobenzene	59	85	35-136	25	30				
Dichlorodifluoromethane	42	46	26-151	1	30				
1,1-Dichloroethane	73	91	63-142	10	30				
1,2-Dichloroethane	82	98	68-131	7	30				
1,1-Dichloroethene	72	91	61-149	12	30				
cis-1,2-Dichloroethene	73	91	60-136	12	30				
trans-1,2-Dichloroethene	72	89	59-142	10	30				
1,2-Dichloropropane	75	90	62-135	8	30				
1,3-Dichloropropane	78	95	58-129	9	30				
2,2-Dichloropropane	67	85	53-147	12	30				
1,1-Dichloropropene	71	94	54-145	17	30				
cis-1,3-Dichloropropene	67	85	51-131	12	30				
trans-1,3-Dichloropropene	66	86	49-129	16	30				
Ethylbenzene	68	91	44-141	17	30				
Freon 113	72	92	56-156	13	30				
Hexachlorobutadiene	58	84	10-155	27	30				
2-Hexanone	68	70	32-160	9	30				
Isopropylbenzene	66	91	38-144	22	30				
p-Isopropyltoluene	64	92	29-152	25	30				
Methyl Acetate	106	108	48-161	10	30				
Methyl Tertiary Butyl Ether	86	93	55-129	3	30				
4-Methyl-2-pentanone	82	86	46-139	5	30				
Methylcyclohexane	71	92	39-168	16	30				
Methylene Chloride	80	93	61-141	4	30				
Naphthalene	49	79	10-138	36*	30				
n-Propylbenzene	68	94	39-157	22	30				
Styrene	62	86	35-134	21	30				
1,1,1,2-Tetrachloroethane	69	86	52-130	12	30				

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(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1281221
Reported: 01/04/12 at 03:54 PM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
1,1,2,2-Tetrachloroethane	82	94	40-152	3	30				
Tetrachloroethene	69	94	42-149	19	30				
Toluene	72	92	50-146	13	30				
1,2,3-Trichlorobenzene	50	76	10-140	31*	30				
1,2,4-Trichlorobenzene	51	76	10-136	28	30				
1,1,1-Trichloroethane	72	89	64-142	10	30				
1,1,2-Trichloroethane	82	94	54-139	3	30				
Trichloroethene	76	91	53-144	7	30				
Trichlorofluoromethane	67	77	47-163	3	30				
1,2,3-Trichloropropane	83	98	45-154	6	30				
1,2,4-Trimethylbenzene	66	92	37-149	21	30				
1,3,5-Trimethylbenzene	67	92	38-150	21	30				
Vinyl Acetate	106	102	21-139	20	30				
Vinyl Chloride	56	67	50-154	7	30				
m+p-Xylene	67	90	44-137	18	30				
o-Xylene	67	90	42-137	17	30				
Batch number: 11350SLE026	Sample number(s): 6500540-6500551,6500553-6500555,6500557,6500559 UNSPK: 6500553								
Acenaphthene	90	87	41-135	3	30				
Acenaphthylene	97	95	47-137	2	30				
Anthracene	90	89	40-147	1	30				
Benzo(a)anthracene	85	83	32-150	3	30				
Benzo(a)pyrene	89	88	57-129	2	30				
Benzo(b)fluoranthene	79	78	53-131	1	30				
Benzo(g,h,i)perylene	92	90	60-123	2	30				
Benzo(k)fluoranthene	90	87	61-131	3	30				
Benzyl alcohol	79	80	63-128	2	30				
1,1'-Biphenyl	93	100	51-127	6	30				
4-Bromophenyl-phenylether	95	93	46-131	2	30				
Butylbenzylphthalate	94	94	26-161	0	30				
Di-n-butylphthalate	92	94	32-139	2	30				
Carbazole	87	86	36-148	1	30				
4-Chloro-3-methylphenol	82	84	33-144	2	30				
4-Chloroaniline	72	70	11-114	3	30				
bis(2-Chloroethoxy)methane	92	91	44-132	0	30				
bis(2-Chloroethyl)ether	89	91	45-139	2	30				
2-Chloronaphthalene	83	82	22-131	1	30				
2-Chlorophenol	89	91	29-151	3	30				
4-Chlorophenyl-phenylether	88	86	42-130	2	30				
Chrysene	88	84	76-114	5	30				
Dibenz(a,h)anthracene	95	92	37-151	3	30				
Dibenzofuran	87	86	38-148	2	30				
3,3'-Dichlorobenzidine	77	78	10-143	1	30				
2,4-Dichlorophenol	87	88	35-142	1	30				
Diethylphthalate	88	89	32-137	1	30				
2,4-Dimethylphenol	82	85	27-143	4	30				
Dimethylphthalate	92	92	26-141	1	30				
4,6-Dinitro-2-methylphenol	46	53	10-148	15	30				
2,4-Dinitrophenol	27	33	20-143	19	30				
2,4-Dinitrotoluene	86	87	27-147	1	30				
2,6-Dinitrotoluene	93	93	44-140	0	30				
1,4-Dioxane	49	54	31-77	10	30				
bis(2-Ethylhexyl)phthalate	99	101	38-151	2	30				

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1281221
Reported: 01/04/12 at 03:54 PM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Fluoranthene	80	79	48-122	1	30				
Fluorene	87	86	35-140	1	30				
Hexachlorobenzene	87	87	53-137	0	30				
Hexachlorocyclopentadiene	38	38	10-153	0	30				
Hexachloroethane	84	85	71-104	2	30				
Indeno(1,2,3-cd)pyrene	94	91	61-123	4	30				
Isophorone	89	89	54-122	0	30				
2-Methylnaphthalene	85	87	23-141	2	30				
2-Methylphenol	88	91	30-145	3	30				
4-Methylphenol	88	90	36-149	2	30				
2-Nitroaniline	92	93	46-146	1	30				
3-Nitroaniline	86	85	34-134	1	30				
4-Nitroaniline	68	66	26-124	3	30				
Nitrobenzene	91	92	37-139	1	30				
2-Nitrophenol	87	88	25-151	0	30				
4-Nitrophenol	74	76	15-149	3	30				
N-Nitroso-di-n-propylamine	80	82	46-128	1	30				
N-Nitrosodiphenylamine	100	103	33-148	3	30				
Di-n-octylphthalate	98	99	43-149	1	30				
Pentachlorophenol	71	73	23-145	3	30				
Phenanthrene	89	87	34-147	2	30				
Phenol	85	88	39-151	3	30				
Pyrene	87	86	76-124	1	30				
2,4,5-Trichlorophenol	91	91	25-143	0	30				
2,4,6-Trichlorophenol	90	92	41-142	2	30				
Batch number: 11353SLC026	Sample number(s): 6500558 UNSPK: P501839								
Acenaphthene	72	44	41-135	49*	30				
Acenaphthylene	77	49	47-137	44*	30				
Anthracene	71	45	40-147	44*	30				
Benzo(a)anthracene	67	44	32-150	41*	30				
Benzo(a)pyrene	73	41*	57-129	57*	30				
Benzo(b)fluoranthene	71	44*	53-131	47*	30				
Benzo(g,h,i)perylene	73	43*	60-123	52*	30				
Benzo(k)fluoranthene	70	44*	61-131	45*	30				
Benzyl alcohol	0*	0*	63-128	0	30				
1,1'-Biphenyl	70	44*	51-127	47*	30				
4-Bromophenyl-phenylether	65	44*	46-131	40*	30				
Butylbenzylphthalate	74	47	26-161	45*	30				
Di-n-butylphthalate	73	45	32-139	48*	30				
Carbazole	72	45	36-148	47*	30				
4-Chloro-3-methylphenol	68	43	33-144	46*	30				
4-Chloroaniline	41	25	11-114	47*	30				
bis(2-Chloroethoxy)methane	68	43*	44-132	45*	30				
bis(2-Chloroethyl)ether	73	46	45-139	46*	30				
2-Chloronaphthalene	84	52	22-131	47*	30				
2-Chlorophenol	72	41	29-151	56*	30				
4-Chlorophenyl-phenylether	68	43	42-130	45*	30				
Chrysene	67*	43*	76-114	45*	30				
Dibenz(a,h)anthracene	70	42	37-151	50*	30				
Dibenzofuran	70	44	38-148	46*	30				
3,3'-Dichlorobenzidine	0*	0*	10-143	0	30				
2,4-Dichlorophenol	66	43	35-142	42*	30				

*- Outside of specification
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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1281221
Reported: 01/04/12 at 03:54 PM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Diethylphthalate	74	45	32-137	49*	30				
2,4-Dimethylphenol	69	41	27-143	51*	30				
Dimethylphthalate	71	43	26-141	49*	30				
4,6-Dinitro-2-methylphenol	0*	0*	10-148	0	30				
2,4-Dinitrophenol	118	107	20-143	9	30				
2,4-Dinitrotoluene	67	0*	27-147	200*	30				
2,6-Dinitrotoluene	64	40*	44-140	47*	30				
1,4-Dioxane	0*	0*	31-77	0	30				
bis(2-Ethylhexyl)phthalate	72	44	38-151	47*	30				
Fluoranthene	77	47*	48-122	49*	30				
Fluorene	74	47	35-140	44*	30				
Hexachlorobenzene	69	44*	53-137	43*	30				
Hexachlorocyclopentadiene	0*	0*	10-153	0	30				
Hexachloroethane	66*	38*	71-104	54*	30				
Indeno(1,2,3-cd)pyrene	69	40*	61-123	55*	30				
Isophorone	67	44*	54-122	41*	30				
2-Methylnaphthalene	67	44	23-141	41*	30				
2-Methylphenol	78	47	30-145	49*	30				
4-Methylphenol	68	43	36-149	45*	30				
2-Nitroaniline	67	39*	46-146	53*	30				
3-Nitroaniline	54	0*	34-134	200*	30				
4-Nitroaniline	46	0*	26-124	200*	30				
Nitrobenzene	74	49	37-139	41*	30				
2-Nitrophenol	63	38	25-151	50*	30				
4-Nitrophenol	0*	0*	15-149	0	30				
N-Nitroso-di-n-propylamine	68	42*	46-128	47*	30				
N-Nitrosodiphenylamine	71	44	33-148	48*	30				
Di-n-octylphthalate	77	46	43-149	51*	30				
Pentachlorophenol	156*	131	23-145	18	30				
Phenanthrene	76	45	34-147	51*	30				
Phenol	72	44	39-151	47*	30				
Pyrene	67*	46*	76-124	39*	30				
2,4,5-Trichlorophenol	67	46	25-143	38*	30				
2,4,6-Trichlorophenol	68	41	41-142	50*	30				
Batch number: 113501026002A	Sample number(s): 6500540-6500551,6500553-6500559 UNSPK: 6500553 BKG: 6500553								
Arsenic	317 (2)	193 (2)	75-125	18	20	9.53	12.7	28*	20
Batch number: 113505708003	Sample number(s): 6500540-6500551,6500553-6500559 UNSPK: 6500553 BKG: 6500553								
Barium	100	102	75-125	1	20	128	128	0	20
Cadmium	75	73*	75-125	2	20	1.51	0.656	79* (1)	20
Chromium	132*	104	75-125	8	20	46.5	53.8	15	20
Lead	93	97	75-125	1	20	15.7	17.4	10	20
Selenium	98	97	75-125	2	20	0.660 U	0.673 U	0 (1)	20
Silver	85	85	75-125	2	20	0.0806 U	0.0822 U	0 (1)	20
Batch number: 113505711003	Sample number(s): 6500540-6500551,6500553-6500559 UNSPK: 6500553 BKG: 6500553								
Mercury	97	95	80-120	3	20	0.0089 J	0.0084 J	6 (1)	20
Batch number: 113536050003A	Sample number(s): 6500552 UNSPK: P501125 BKG: P501125								
Arsenic	192*	187*	75-125	2	20	0.0088	0.0090	2 (1)	20
Batch number: 113555705002	Sample number(s): 6500552 UNSPK: P501209 BKG: P501209								

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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1281221
Reported: 01/04/12 at 03:54 PM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
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Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Barium	102	101	78-118	1	20	0.0179	0.0177	1 (1)	20
Cadmium	103	103	83-116	0	20	0.00027 U	0.00027 U	0 (1)	20
Chromium	101	101	81-120	0	20	0.0017 J	0.0020 J	15 (1)	20
Lead	106	105	75-125	0	20	0.0022 U	0.0022 U	0 (1)	20
Selenium	105	105	75-125	1	20	0.0069 U	0.0069 U	0 (1)	20
Silver	93	93	75-125	0	20	0.00091 U	0.00091 U	0 (1)	20
Batch number: 113565713002	Sample number(s): 6500552 UNSPK: P506029 BKG: P506029								
Mercury	102	105	80-120	3	20	0.000026 U	0.000026 U	0 (1)	20
Batch number: 11350820002A	Sample number(s): 6500540-6500551 BKG: 6500542								
Moisture						16.0	17.1	7	15
Batch number: 11350820002B	Sample number(s): 6500553-6500559 BKG: 6500553								
Moisture						20.0	20.3	2	15
Moisture						20.0	20.3	2	15
Moisture Duplicate						20.0	20.3	2	15

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed
unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 8260 Ext. Soil Master
Batch number: Q113562AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
6500541	104	102	98	98
6500542	101	99	100	96
6500543	104	106	98	97
6500544	101	105	102	97
6500545	102	103	100	97
6500546	103	107	98	95
6500547	105	105	100	92
6500548	105	110*	98	98
6500549	103	103	96	96
6500550	104	103	98	96
6500551	105	106	98	97
6500553	103	104	97	95
6500554	102	108	103	99
6500555	102	103	102	99
6500557	103	102	98	97
6500558	103	103	103	88
6500559	105	106	98	96
Blank	100	97	98	97
LCS	100	96	102	102
MS	102	108	103	99
MSD	102	103	102	99
Limits:	71-114	70-109	70-123	70-111

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1281221
Reported: 01/04/12 at 03:54 PM

Surrogate Quality Control

Analysis Name: 8260 Ext. Soil Master
Batch number: R113571AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
6500540	72	75	68*	62*
6500540 RE	72	71	69*	63*
Blank	88	94	85	75
LCS	98	101	97	88
LCSD	94	97	94	85
Limits:	71-114	70-109	70-123	70-111

Analysis Name: 8260 Ext. Water Master
Batch number: Y113501AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
6500560	91	100	100	94
Blank	93	99	101	94
LCS	92	102	103	100
LCSD	92	100	102	100
Limits:	80-116	77-113	80-113	78-113

Analysis Name: TCL 8270 (microwave)
Batch number: 11350SLE026

	Phenol-d6	2-Fluorophenol	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
6500540	66	69	55	61	63	66
6500541	89	92	87	85	85	91
6500542	94	98	91	91	90	96
6500543	98	102	92	96	95	104
6500544	95	98	84	90	89	98
6500545	88	92	82	84	84	94
6500546	99	102	89	95	95	102
6500547	101	105	88	94	94	101
6500548	72	79	49	74	72	70
6500548 DL	83	89	57	80	81	78
6500549	89	94	70	92	99	98
6500550	94	98	71	93	100	102
6500551	91	97	74	95	100	103
6500553	80	84	62	82	88	87
6500554	84	88	67	87	92	93
6500555	86	91	70	87	92	92
6500557	91	96	75	94	98	99
6500559	93	98	75	92	97	101
Blank	97	103	91	97	98	105
LCS	91	95	84	89	92	96
MS	84	88	67	87	92	93
MSD	86	91	70	87	92	92
Limits:	42-130	39-136	28-139	45-123	56-121	43-124

Analysis Name: TCL 8270 (microwave)
Batch number: 11353SLC026

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1281221
Reported: 01/04/12 at 03:54 PM

Surrogate Quality Control

	Phenol-d6	2-Fluorophenol	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
6500558	97	102	90	95	99	108
Blank	80	89	85	83	85	94
LCS	93	100	93	88	91	95
MS	77	79	70	69	75	76
MSD	45	44	39	42*	43*	44
Limits:	42-130	39-136	28-139	45-123	56-121	43-124

Analysis Name: TCL SW846 Semivolatiles/Waters
Batch number: 11353WAA026

	2-Fluorophenol	Phenol-d6	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
6500552	41	24	90	94	97	109
Blank	49	35	94	95	98	114
LCS	57	43	92	97	100	109
LCSD	55	41	91	98	99	107
Limits:	10-98	10-74	22-150	52-120	63-114	34-118

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Analysis Request/ Environmental Services Chain of Custody

Lancaster Laboratories

Page 1 of 2

For Lancaster Laboratories use only

Acct. # 11372 Group# 1281221 Sample # 6500540-60

COC # 276347

Please print. Instructions on reverse side correspond with circled numbers.

For Lab Use Only
FSC:
SCR#:

(1)
Client: DOW Hanging Rock Acct. #:
Project Name/#: 420671.01.FI PWSID #:
Project Manager: Mark Holland P.O.#: 420691-04
Sampler: Osaguona Ogbebor Quote #:
Name of state where samples were collected: Ohio

(5) Analyses Requested — Preservation Codes

Preservation Codes: H=HCl, T=Thiosulfate, N=HNO_3, B=NaOH, S=H_2SO_4, O=Other

(2) Sample Identification	Date Collected	Time Collected	(3) Grab	Composite	Matrix: Soil	Matrix: Water (Potable / NPDES)	Matrix: Other	(4) Total # of Containers	VOCs	SVOCs	Metals	Moisture Content					Remarks	(6) Temperature of samples upon receipt (if requested)
AØD-SS02-ØØØ2-121411	12/14/11	0930		X	X			4	✓	✓	✓	✓						
AØD-SSØ2-Ø3Ø5-121411	12/14/11	0935		X	X			4	✓	✓	✓	✓						
AØD-SSØ2-Ø81Ø-121411	12/14/11	0940		X	X			4	✓	✓	✓	✓						
AØD-SSØ2-1315-121411	12/14/11	0945		X	X			4	✓	✓	✓	✓						
AØD-SSØ1-ØØØ2-121411	12/14/11	1010		X	X			4	✓	✓	✓	✓						
AØD-SSØ1-Ø3Ø5-121411	12/14/11	1015		X	X			4	✓	✓	✓	✓						
AØD-SSØ1-Ø81Ø-121411	12/14/11	1020		X	X			4	✓	✓	✓	✓						
AØD-SSØ1-2123-121411	12/14/11	1030		X	X			4	✓	✓	✓	✓						
S24-SSØ1-ØØØ2-121411	12/14/11	1205		X	X			4	✓	✓	✓	✓						
S24-SSØ1-Ø3Ø5-121411	12/14/11	1210		X	X			4	✓	✓	✓	✓						

(7) **Turnaround Time Requested** (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed: N/A
Rush results requested by (please circle): Phone Fax E-mail
Phone #: / Fax #: /
E-mail address: /

(8) **Data Package Options** (please circle if required)
Type I (validation/NJ Reg) TX TRRP-13
Type II (Tier II) MA MCP CT RCP
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)

SDG Complete? Yes No

Site-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate volume.)
Internal COC Required? Yes / No

(9)

Relinquished by:	Date	Time	Received by:	Date	Time
OSaguona	12/14/11	1800			
			Brandy Bush	12-15-11	930

Lancaster Laboratories, Inc., 2425 New Holland Pike, Lancaster, PA 17601 (717) 656-2300 Fax: (717) 656-6766
Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client.

Issued by Dept. 6042 Management
2102.05

Analysis Request/ Environmental Services Chain of Custody

Lancaster Laboratories

2 of 2

For Lancaster Laboratories use only

Acct. # 11372 Group# 1281221 Sample # 6500540-60

COC # 276360

Please print. Instructions on reverse side correspond with circled numbers.

(1) Client: Dow Hanging Rock Acct. #:

Project Name/#: 420671-01-FI PWSID #:

Project Manager: Mark Holland P.O.#: 420671-04

Sampler: Osagwora Ogbeba Quote #:

Name of state where samples were collected: Ohio

(2) Sample Identification	Date Collected	Time Collected	(3) Grab	Composite	Matrix: Soil	Water (☐ Potable ☐ NPDES Check if Applicable)	Other	(4) Total # of Containers	(5) Analyses Requested / Preservation Codes: VOCs	SVOCs	Metals	Moisture Content	Remarks
S24-SS01-0810-121411	12/14/11	1215		X	X			4	✓	✓	✓	✓	
S24-SS01-2123-121411	12/14/11	1240		X	X			4	✓	✓	✓	✓	
HGR-121411-EB01	12/14/11	1405	X			X		3		✓	✓		
S17-SS02-0002-121411	12/14/11	1420		X	X			4	✓	✓	✓	✓	
S17-SS02-0002-121411MS	12/14/11	1420		X	X			4	✓	✓	✓	✓	
S17-SS02-0002-121411MSD	12/14/11	1420		X	X			4	✓	✓	✓	✓	
S17-SS02-0305-121411	12/14/11	1425		X	X			4	✓	✓	✓	✓	
S17-SS02-0810-121411	12/14/11	1430		X	X			4	✓	✓	✓	✓	
S17-SS02-1517-121411	12/14/11	1440		X	X			4	✓	✓	✓	✓	
121411TB	12/01/11	—	X		-	X		2	✓				

For Lab Use Only
FSC:
SCR#:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

(6) Temperature of samples upon receipt (if requested)

(7) **Turnaround Time Requested** (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed: N/A
Rush results requested by (please circle): Phone Fax E-mail
Phone #: Fax #:
E-mail address:

(8) **Data Package Options** (please circle if required)
Type I (validation/NJ Reg)
Type II (Tier II)
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)
TX TRRP-13
MA MCP CT RCP
SDG Complete? Yes No
Site-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate volume.)
Internal COC Required? Yes / No

(9)

Relinquished by:	Date	Time	Received by:	Date	Time
OSagwora	12/14/11	1800			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by: Brandy Binder	12/15/11	930

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

J estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike sample not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*****	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Analysis Report

ANALYTICAL RESULTS

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425

Prepared for:

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

January 05, 2012

Project: Dow Hanging Rock, OH

Submittal Date: 12/16/2011
Group Number: 1281468
SDG: DHR11
PO Number: 420671-04
Release Number: DHR11
State of Sample Origin: OH

Client Sample Description	Lancaster Labs (LLI) #
S15-SS04-0002-121511 Composite Soil Sample	6502117
S15-SS04-0305-121511 Composite Soil Sample	6502118
S15-SS04-0810-121511 Composite Soil Sample	6502119
S15-SS03-0002-121511 Composite Soil Sample	6502120
S15-SS03-0305-121511 Composite Soil Sample	6502121
S15-SS03-0810-121511 Composite Soil Sample	6502122
S15-SS03-1315-121511 Composite Soil Sample	6502123
S15-SS01-0002-121511 Composite Soil Sample	6502124
S15-SS01-0305-121511 Composite Soil Sample	6502125
S15-SS01-0810-121511 Composite Soil Sample	6502126
S15-SS02-0002-121511 Composite Soil Sample	6502127
S15-SS02-0305-121511 Composite Soil Sample	6502128
S15-SS02-0810-121511 Composite Soil Sample	6502129
S15-SS02-1315-121511 Composite Soil Sample	6502130
S15-SS02-2022-121511 Composite Soil Sample	6502131
HGR-121511-EB01 Grab Water Sample	6502132
HGR-121511-FD01 Composite Soil Sample	6502133
HGR-121511-FD02 Composite Soil Sample	6502134
HGR-121511-FD03 Composite Soil Sample	6502135
HGR-121511-FD04 Composite Soil Sample	6502136
HGR-121511-FD05 Composite Soil Sample	6502137
HGR-121511-FD06 Composite Soil Sample	6502138
HGR-121511-FD07 Composite Soil Sample	6502139
HGR-121511-FD08 Composite Soil Sample	6502140
121511TB Water Sample	6502141

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The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Shane Lowe
ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Rachel Grand
1 COPY TO	Data Package Group	

Questions? Contact your Client Services Representative
Wendy A Kozma at (717) 656-2300 Ext. 1522

Respectfully Submitted,

Lawrence M. Taylor
Senior Specialist

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Analysis Report

Sample Description: S15-SS04-0002-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502117
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 09:30 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

154-1 SDG#: DHR11-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	25		8	0.98
10949	Benzene	71-43-2	0.6	U	0.6	0.98
10949	Bromobenzene	108-86-1	1	U	1	0.98
10949	Bromochloromethane	74-97-5	1	U	1	0.98
10949	Bromodichloromethane	75-27-4	1	U	1	0.98
10949	Bromoform	75-25-2	1	U	1	0.98
10949	Bromomethane	74-83-9	2	U	2	0.98
10949	2-Butanone	78-93-3	5	U	5	0.98
10949	n-Butylbenzene	104-51-8	1	U	1	0.98
10949	sec-Butylbenzene	135-98-8	1	U	1	0.98
10949	tert-Butylbenzene	98-06-6	1	U	1	0.98
10949	Carbon Disulfide	75-15-0	11		1	0.98
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.98
10949	Chlorobenzene	108-90-7	1	U	1	0.98
10949	Chloroethane	75-00-3	2	U	2	0.98
10949	Chloroform	67-66-3	1	U	1	0.98
10949	Chloromethane	74-87-3	2	U	2	0.98
10949	2-Chlorotoluene	95-49-8	1	U	1	0.98
10949	4-Chlorotoluene	106-43-4	1	U	1	0.98
10949	Cyclohexane	110-82-7	1	U	1	0.98
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.98
10949	Dibromochloromethane	124-48-1	1	U	1	0.98
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.98
10949	Dibromomethane	74-95-3	1	U	1	0.98
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.98
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.98
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.98
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.98
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.98
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.98
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.98
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.98
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.98
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.98
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.98
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.98
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.98
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.98
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.98
10949	Ethylbenzene	100-41-4	1	U	1	0.98
10949	Freon 113	76-13-1	2	U	2	0.98
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.98
10949	2-Hexanone	591-78-6	3	U	3	0.98
10949	Isopropylbenzene	98-82-8	1	U	1	0.98
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.98
10949	Methyl Acetate	79-20-9	2	U	2	0.98
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.6	U	0.6	0.98
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.98
10949	Methylcyclohexane	108-87-2	1	U	1	0.98
10949	Methylene Chloride	75-09-2	2	U	2	0.98
10949	Naphthalene	91-20-3	1	U	1	0.98

Sample Description: S15-SS04-0002-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502117
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 09:30 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

154-1 SDG#: DHR11-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.98
10949	Styrene	100-42-5	1	U	1	0.98
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.98
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.98
10949	Tetrachloroethene	127-18-4	1	U	1	0.98
10949	Toluene	108-88-3	1	U	1	0.98
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.98
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.98
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.98
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.98
10949	Trichloroethene	79-01-6	1	U	1	0.98
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.98
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.98
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.98
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.98
10949	Vinyl Acetate	108-05-4	2	U	2	0.98
10949	Vinyl Chloride	75-01-4	1	U	1	0.98
10949	m+p-Xylene	179601-23-1	1	U	1	0.98
10949	o-Xylene	95-47-6	1	U	1	0.98

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 4-methyl-2-pentanone.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	30		4	1
10727	Acenaphthylene	208-96-8	10	J	4	1
10727	Anthracene	120-12-7	62		4	1
10727	Benzo(a)anthracene	56-55-3	150		4	1
10727	Benzo(a)pyrene	50-32-8	150		4	1
10727	Benzo(b)fluoranthene	205-99-2	220		4	1
10727	Benzo(g,h,i)perylene	191-24-2	100		4	1
10727	Benzo(k)fluoranthene	207-08-9	84		4	1
10727	Benzyl alcohol	100-51-6	190	U	190	1
10727	1,1'-Biphenyl	92-52-4	53		19	1
10727	4-Bromophenyl-phenylether	101-55-3	19	U	19	1
10727	Butylbenzylphthalate	85-68-7	78	U	78	1
10727	Di-n-butylphthalate	84-74-2	78	U	78	1
10727	Carbazole	86-74-8	23	J	19	1
10727	4-Chloro-3-methylphenol	59-50-7	19	U	19	1
10727	4-Chloroaniline	106-47-8	19	U	19	1
10727	bis(2-Chloroethoxy)methane	111-91-1	19	U	19	1
10727	bis(2-Chloroethyl)ether	111-44-4	19	U	19	1
10727	2-Chloronaphthalene	91-58-7	8	U	8	1
10727	2-Chlorophenol	95-57-8	19	U	19	1
10727	4-Chlorophenyl-phenylether	7005-72-3	19	U	19	1
10727	Chrysene	218-01-9	180		4	1
10727	Dibenz(a,h)anthracene	53-70-3	19	J	4	1
10727	Dibenzofuran	132-64-9	40		19	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	19	U	19	1

Sample Description: S15-SS04-0002-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502117
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 09:30 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

154-1 SDG#: DHR11-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Diethylphthalate	84-66-2	78	U	78	1
10727	2,4-Dimethylphenol	105-67-9	19	U	19	1
10727	Dimethylphthalate	131-11-3	78	U	78	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	190	U	190	1
10727	2,4-Dinitrophenol	51-28-5	390	U	390	1
10727	2,4-Dinitrotoluene	121-14-2	78	U	78	1
10727	2,6-Dinitrotoluene	606-20-2	19	U	19	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	78	U	78	1
10727	Fluoranthene	206-44-0	500		4	1
10727	Fluorene	86-73-7	25		4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	190	U	190	1
10727	Hexachloroethane	67-72-1	39	U	39	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	90		4	1
10727	Isophorone	78-59-1	19	U	19	1
10727	2-Methylnaphthalene	91-57-6	56		4	1
10727	2-Methylphenol	95-48-7	19	U	19	1
10727	4-Methylphenol	106-44-5	19	U	19	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	19	U	19	1
10727	3-Nitroaniline	99-09-2	78	U	78	1
10727	4-Nitroaniline	100-01-6	78	U	78	1
10727	Nitrobenzene	98-95-3	19	U	19	1
10727	2-Nitrophenol	88-75-5	19	U	19	1
10727	4-Nitrophenol	100-02-7	190	U	190	1
10727	N-Nitroso-di-n-propylamine	621-64-7	19	U	19	1
10727	N-Nitrosodiphenylamine	86-30-6	19	U	19	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	78	U	78	1
10727	Pentachlorophenol	87-86-5	39	U	39	1
10727	Phenanthrene	85-01-8	310		4	1
10727	Phenol	108-95-2	19	U	19	1
10727	Pyrene	129-00-0	320		4	1
10727	2,4,5-Trichlorophenol	95-95-4	19	U	19	1
10727	2,4,6-Trichlorophenol	88-06-2	19	U	19	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	251		0.0204	1
06949	Cadmium	7440-43-9	0.712		0.0234	1
06951	Chromium	7440-47-3	31.2		0.164	1
06955	Lead	7439-92-1	11.1		0.257	1
06936	Selenium	7782-49-2	0.795	U	0.795	1
06966	Silver	7440-22-4	0.0971	U	0.0971	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	11.6		0.0900	2

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Analysis Report

Sample Description: S15-SS04-0002-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502117
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 09:30 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

154-1 SDG#: DHR11-01

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0110 J	0.0078	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	14.5	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	Q113562AA	12/23/2011 01:17	Sara E Johnson	0.98
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201135026461	12/16/2011 13:01	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201135026461	12/16/2011 13:02	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201135026461	12/16/2011 13:01	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11354SLE026	12/28/2011 09:36	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	11354SLE026	12/21/2011 07:30	Katheryne V Sponheimer	1
06946	Barium	SW-846 6010B	2	120045708004	01/05/2012 05:58	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	113535708001	12/30/2011 12:43	Joanne M Gates	1
06951	Chromium	SW-846 6010B	1	113535708001	12/30/2011 12:43	Joanne M Gates	1
06955	Lead	SW-846 6010B	1	113535708001	12/30/2011 12:43	Joanne M Gates	1
06936	Selenium	SW-846 6010B	1	113535708001	01/03/2012 23:59	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	113535708001	12/30/2011 12:43	Joanne M Gates	1
06125	Arsenic	SW-846 6020	1	113531026002A	12/22/2011 12:46	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113535711001	12/20/2011 08:39	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113535708001	12/19/2011 11:22	James L Mertz	1
05708	SW SW846 ICP Digest	SW-846 3050B	2	120045708004	01/04/2012 20:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113531026002	12/19/2011 10:58	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113535711001	12/19/2011 12:28	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11354820003A	12/20/2011 10:56	William C Schwebel	1

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Analysis Report

Sample Description: S15-SS04-0305-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502118
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 09:45 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

154-2 SDG#: DHR11-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	12	J	7	0.87
10949	Benzene	71-43-2	0.5	U	0.5	0.87
10949	Bromobenzene	108-86-1	1	U	1	0.87
10949	Bromochloromethane	74-97-5	1	U	1	0.87
10949	Bromodichloromethane	75-27-4	1	U	1	0.87
10949	Bromoform	75-25-2	1	U	1	0.87
10949	Bromomethane	74-83-9	2	U	2	0.87
10949	2-Butanone	78-93-3	4	U	4	0.87
10949	n-Butylbenzene	104-51-8	1	U	1	0.87
10949	sec-Butylbenzene	135-98-8	1	U	1	0.87
10949	tert-Butylbenzene	98-06-6	1	U	1	0.87
10949	Carbon Disulfide	75-15-0	1	U	1	0.87
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.87
10949	Chlorobenzene	108-90-7	1	U	1	0.87
10949	Chloroethane	75-00-3	2	U	2	0.87
10949	Chloroform	67-66-3	1	U	1	0.87
10949	Chloromethane	74-87-3	2	U	2	0.87
10949	2-Chlorotoluene	95-49-8	1	U	1	0.87
10949	4-Chlorotoluene	106-43-4	1	U	1	0.87
10949	Cyclohexane	110-82-7	1	U	1	0.87
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.87
10949	Dibromochloromethane	124-48-1	1	U	1	0.87
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.87
10949	Dibromomethane	74-95-3	1	U	1	0.87
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.87
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.87
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.87
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.87
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.87
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.87
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.87
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.87
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.87
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.87
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.87
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.87
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.87
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.87
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.87
10949	Ethylbenzene	100-41-4	1	U	1	0.87
10949	Freon 113	76-13-1	2	U	2	0.87
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.87
10949	2-Hexanone	591-78-6	3	U	3	0.87
10949	Isopropylbenzene	98-82-8	1	U	1	0.87
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.87
10949	Methyl Acetate	79-20-9	2	U	2	0.87
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.87
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.87
10949	Methylcyclohexane	108-87-2	1	U	1	0.87
10949	Methylene Chloride	75-09-2	2	U	2	0.87
10949	Naphthalene	91-20-3	1	U	1	0.87

Sample Description: S15-SS04-0305-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502118
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 09:45 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

154-2 SDG#: DHR11-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.87
10949	Styrene	100-42-5	1	U	1	0.87
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.87
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.87
10949	Tetrachloroethene	127-18-4	1	U	1	0.87
10949	Toluene	108-88-3	1	U	1	0.87
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.87
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.87
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.87
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.87
10949	Trichloroethene	79-01-6	1	U	1	0.87
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.87
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.87
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.87
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.87
10949	Vinyl Acetate	108-05-4	2	U	2	0.87
10949	Vinyl Chloride	75-01-4	1	U	1	0.87
10949	m+p-Xylene	179601-23-1	1	U	1	0.87
10949	o-Xylene	95-47-6	1	U	1	0.87

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 4-methyl-2-pentanone.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	16	J	4	1
10727	Acenaphthylene	208-96-8	5	J	4	1
10727	Anthracene	120-12-7	17	J	4	1
10727	Benzo(a)anthracene	56-55-3	37		4	1
10727	Benzo(a)pyrene	50-32-8	41		4	1
10727	Benzo(b)fluoranthene	205-99-2	50		4	1
10727	Benzo(g,h,i)perylene	191-24-2	27		4	1
10727	Benzo(k)fluoranthene	207-08-9	26		4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	20	U	20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	80	U	80	1
10727	Di-n-butylphthalate	84-74-2	80	U	80	1
10727	Carbazole	86-74-8	20	U	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	8	U	8	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	45		4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	J	4	1
10727	Dibenzofuran	132-64-9	20	U	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1

Sample Description: S15-SS04-0305-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502118
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 09:45 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

154-2 SDG#: DHR11-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Diethylphthalate	84-66-2	80	U	80	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	80	U	80	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1
10727	2,4-Dinitrophenol	51-28-5	400	U	400	1
10727	2,4-Dinitrotoluene	121-14-2	80	U	80	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	80	U	80	1
10727	Fluoranthene	206-44-0	110		4	1
10727	Fluorene	86-73-7	17	J	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	40	U	40	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	22		4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	80	U	80	1
10727	4-Nitroaniline	100-01-6	80	U	80	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	80	U	80	1
10727	Pentachlorophenol	87-86-5	55	J	40	1
10727	Phenanthrene	85-01-8	46		4	1
10727	Phenol	108-95-2	20	U	20	1
10727	Pyrene	129-00-0	150		4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	105		0.0213	1
06949	Cadmium	7440-43-9	0.725		0.0237	1
06951	Chromium	7440-47-3	26.2		0.166	1
06955	Lead	7439-92-1	12.8		0.260	1
06936	Selenium	7782-49-2	0.804	U	0.804	1
06966	Silver	7440-22-4	0.0982	U	0.0982	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	12.5		0.0946	2

Sample Description: S15-SS04-0305-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502118
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 09:45 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

154-2 SDG#: DHR11-02

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0241 J	0.0085	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	17.1	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	Q113562AA	12/23/2011 01:40	Sara E Johnson	0.87
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201135026461	12/16/2011 13:03	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201135026461	12/16/2011 13:03	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201135026461	12/16/2011 13:02	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11354SLE026	12/28/2011 10:49	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	11354SLE026	12/21/2011 07:30	Katheryne V Sponheimer	1
06946	Barium	SW-846 6010B	2	120045708004	01/05/2012 06:25	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	113535708001	12/30/2011 12:46	Joanne M Gates	1
06951	Chromium	SW-846 6010B	1	113535708001	12/30/2011 12:46	Joanne M Gates	1
06955	Lead	SW-846 6010B	1	113535708001	12/30/2011 12:46	Joanne M Gates	1
06936	Selenium	SW-846 6010B	1	113535708001	01/04/2012 00:03	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	113535708001	12/30/2011 12:46	Joanne M Gates	1
06125	Arsenic	SW-846 6020	1	113531026002A	12/22/2011 12:56	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113535711001	12/20/2011 08:40	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113535708001	12/19/2011 11:22	James L Mertz	1
05708	SW SW846 ICP Digest	SW-846 3050B	2	120045708004	01/04/2012 20:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113531026002	12/19/2011 10:58	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113535711001	12/19/2011 12:28	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11354820003A	12/20/2011 10:56	William C Schwebel	1

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Analysis Report

Sample Description: S15-SS04-0810-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502119
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 10:00 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

154-3 SDG#: DHR11-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	32		8	0.87
10949	Benzene	71-43-2	0.5	U	0.5	0.87
10949	Bromobenzene	108-86-1	1	U	1	0.87
10949	Bromochloromethane	74-97-5	1	U	1	0.87
10949	Bromodichloromethane	75-27-4	1	U	1	0.87
10949	Bromoform	75-25-2	1	U	1	0.87
10949	Bromomethane	74-83-9	2	U	2	0.87
10949	2-Butanone	78-93-3	5	J	4	0.87
10949	n-Butylbenzene	104-51-8	1	U	1	0.87
10949	sec-Butylbenzene	135-98-8	1	U	1	0.87
10949	tert-Butylbenzene	98-06-6	1	U	1	0.87
10949	Carbon Disulfide	75-15-0	9		1	0.87
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.87
10949	Chlorobenzene	108-90-7	1	U	1	0.87
10949	Chloroethane	75-00-3	2	U	2	0.87
10949	Chloroform	67-66-3	1	U	1	0.87
10949	Chloromethane	74-87-3	2	U	2	0.87
10949	2-Chlorotoluene	95-49-8	1	U	1	0.87
10949	4-Chlorotoluene	106-43-4	1	U	1	0.87
10949	Cyclohexane	110-82-7	1	U	1	0.87
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.87
10949	Dibromochloromethane	124-48-1	1	U	1	0.87
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.87
10949	Dibromomethane	74-95-3	1	U	1	0.87
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.87
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.87
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.87
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.87
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.87
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.87
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.87
10949	cis-1,2-Dichloroethene	156-59-2	1	J	1	0.87
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.87
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.87
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.87
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.87
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.87
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.87
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.87
10949	Ethylbenzene	100-41-4	1	U	1	0.87
10949	Freon 113	76-13-1	2	U	2	0.87
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.87
10949	2-Hexanone	591-78-6	3	U	3	0.87
10949	Isopropylbenzene	98-82-8	1	U	1	0.87
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.87
10949	Methyl Acetate	79-20-9	2	U	2	0.87
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.87
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.87
10949	Methylcyclohexane	108-87-2	1	U	1	0.87
10949	Methylene Chloride	75-09-2	2	U	2	0.87
10949	Naphthalene	91-20-3	1	U	1	0.87

Sample Description: S15-SS04-0810-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502119
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 10:00 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

154-3 SDG#: DHR11-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.87
10949	Styrene	100-42-5	1	U	1	0.87
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.87
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.87
10949	Tetrachloroethene	127-18-4	1	U	1	0.87
10949	Toluene	108-88-3	1	U	1	0.87
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.87
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.87
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.87
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.87
10949	Trichloroethene	79-01-6	1	U	1	0.87
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.87
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.87
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.87
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.87
10949	Vinyl Acetate	108-05-4	2	U	2	0.87
10949	Vinyl Chloride	75-01-4	1	U	1	0.87
10949	m+p-Xylene	179601-23-1	1	U	1	0.87
10949	o-Xylene	95-47-6	1	U	1	0.87
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	10	J	4	1
10727	Benzo(a)pyrene	50-32-8	10	J	4	1
10727	Benzo(b)fluoranthene	205-99-2	15	J	4	1
10727	Benzo(g,h,i)perylene	191-24-2	9	J	4	1
10727	Benzo(k)fluoranthene	207-08-9	5	J	4	1
10727	Benzyl alcohol	100-51-6	210	U	210	1
10727	1,1'-Biphenyl	92-52-4	21	U	21	1
10727	4-Bromophenyl-phenylether	101-55-3	21	U	21	1
10727	Butylbenzylphthalate	85-68-7	83	U	83	1
10727	Di-n-butylphthalate	84-74-2	83	U	83	1
10727	Carbazole	86-74-8	21	U	21	1
10727	4-Chloro-3-methylphenol	59-50-7	21	U	21	1
10727	4-Chloroaniline	106-47-8	21	U	21	1
10727	bis(2-Chloroethoxy)methane	111-91-1	21	U	21	1
10727	bis(2-Chloroethyl)ether	111-44-4	21	U	21	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	21	U	21	1
10727	4-Chlorophenyl-phenylether	7005-72-3	21	U	21	1
10727	Chrysene	218-01-9	12	J	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	21	U	21	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	21	U	21	1
10727	Diethylphthalate	84-66-2	83	U	83	1
10727	2,4-Dimethylphenol	105-67-9	21	U	21	1
10727	Dimethylphthalate	131-11-3	83	U	83	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	210	U	210	1

Sample Description: S15-SS04-0810-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502119
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 10:00 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

154-3 SDG#: DHR11-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	420	U	420	1
10727	2,4-Dinitrotoluene	121-14-2	83	U	83	1
10727	2,6-Dinitrotoluene	606-20-2	21	U	21	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	83	U	83	1
10727	Fluoranthene	206-44-0	20	J	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	210	U	210	1
10727	Hexachloroethane	67-72-1	42	U	42	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	7	J	4	1
10727	Isophorone	78-59-1	21	U	21	1
10727	2-Methylnaphthalene	91-57-6	23		4	1
10727	2-Methylphenol	95-48-7	21	U	21	1
10727	4-Methylphenol	106-44-5	21	U	21	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	21	U	21	1
10727	3-Nitroaniline	99-09-2	83	U	83	1
10727	4-Nitroaniline	100-01-6	83	U	83	1
10727	Nitrobenzene	98-95-3	21	U	21	1
10727	2-Nitrophenol	88-75-5	21	U	21	1
10727	4-Nitrophenol	100-02-7	210	U	210	1
10727	N-Nitroso-di-n-propylamine	621-64-7	21	U	21	1
10727	N-Nitrosodiphenylamine	86-30-6	21	U	21	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	83	U	83	1
10727	Pentachlorophenol	87-86-5	42	U	42	1
10727	Phenanthrene	85-01-8	26		4	1
10727	Phenol	108-95-2	21	U	21	1
10727	Pyrene	129-00-0	19	J	4	1
10727	2,4,5-Trichlorophenol	95-95-4	21	U	21	1
10727	2,4,6-Trichlorophenol	88-06-2	21	U	21	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	180		0.0220	1
06949	Cadmium	7440-43-9	0.575	J	0.0244	1
06951	Chromium	7440-47-3	16.1		0.171	1
06955	Lead	7439-92-1	29.4		0.269	1
06936	Selenium	7782-49-2	0.831	U	0.831	1
06966	Silver	7440-22-4	0.101	U	0.101	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	11.3		0.0978	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0644	J	0.0085	1

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Analysis Report

Sample Description: S15-SS04-0810-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502119
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 10:00 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

154-3 SDG#: DHR11-03

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	19.8	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113611AA	12/27/2011 18:30	Chelsea B Eastep	0.87
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201135026461	12/16/2011 13:05	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201135026461	12/16/2011 13:05	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201135026461	12/16/2011 13:04	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11354SLE026	12/28/2011 11:13	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	11354SLE026	12/21/2011 07:30	Katheryne V Sponheimer	1
06946	Barium	SW-846 6010B	2	120045708004	01/05/2012 06:29	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	113535708001	12/30/2011 12:57	Joanne M Gates	1
06951	Chromium	SW-846 6010B	1	113535708001	12/30/2011 12:57	Joanne M Gates	1
06955	Lead	SW-846 6010B	1	113535708001	12/30/2011 12:57	Joanne M Gates	1
06936	Selenium	SW-846 6010B	1	113535708001	01/04/2012 00:07	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	113535708001	12/30/2011 12:57	Joanne M Gates	1
06125	Arsenic	SW-846 6020	1	113531026002A	12/22/2011 12:57	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113535711001	12/20/2011 08:41	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113535708001	12/19/2011 11:22	James L Mertz	1
05708	SW SW846 ICP Digest	SW-846 3050B	2	120045708004	01/04/2012 20:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113531026002	12/19/2011 10:58	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113535711001	12/19/2011 12:28	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11354820003A	12/20/2011 10:56	William C Schwebel	1

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Analysis Report

Sample Description: S15-SS03-0002-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502120
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 11:05 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

153-1 SDG#: DHR11-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	18	J	9	1.16
10949	Benzene	71-43-2	0.6	U	0.6	1.16
10949	Bromobenzene	108-86-1	1	U	1	1.16
10949	Bromochloromethane	74-97-5	1	U	1	1.16
10949	Bromodichloromethane	75-27-4	1	U	1	1.16
10949	Bromoform	75-25-2	1	U	1	1.16
10949	Bromomethane	74-83-9	3	U	3	1.16
10949	2-Butanone	78-93-3	5	U	5	1.16
10949	n-Butylbenzene	104-51-8	1	U	1	1.16
10949	sec-Butylbenzene	135-98-8	1	U	1	1.16
10949	tert-Butylbenzene	98-06-6	1	U	1	1.16
10949	Carbon Disulfide	75-15-0	3	J	1	1.16
10949	Carbon Tetrachloride	56-23-5	1	U	1	1.16
10949	Chlorobenzene	108-90-7	1	U	1	1.16
10949	Chloroethane	75-00-3	3	U	3	1.16
10949	Chloroform	67-66-3	1	U	1	1.16
10949	Chloromethane	74-87-3	3	U	3	1.16
10949	2-Chlorotoluene	95-49-8	1	U	1	1.16
10949	4-Chlorotoluene	106-43-4	1	U	1	1.16
10949	Cyclohexane	110-82-7	1	U	1	1.16
10949	1,2-Dibromo-3-chloropropane	96-12-8	3	U	3	1.16
10949	Dibromochloromethane	124-48-1	1	U	1	1.16
10949	1,2-Dibromoethane	106-93-4	1	U	1	1.16
10949	Dibromomethane	74-95-3	1	U	1	1.16
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	1.16
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	1.16
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	1.16
10949	Dichlorodifluoromethane	75-71-8	3	U	3	1.16
10949	1,1-Dichloroethane	75-34-3	1	U	1	1.16
10949	1,2-Dichloroethane	107-06-2	1	U	1	1.16
10949	1,1-Dichloroethene	75-35-4	1	U	1	1.16
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	1.16
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	1.16
10949	1,2-Dichloropropane	78-87-5	1	U	1	1.16
10949	1,3-Dichloropropane	142-28-9	1	U	1	1.16
10949	2,2-Dichloropropane	594-20-7	1	U	1	1.16
10949	1,1-Dichloropropene	563-58-6	1	U	1	1.16
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	1.16
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	1.16
10949	Ethylbenzene	100-41-4	1	U	1	1.16
10949	Freon 113	76-13-1	3	U	3	1.16
10949	Hexachlorobutadiene	87-68-3	3	U	3	1.16
10949	2-Hexanone	591-78-6	4	U	4	1.16
10949	Isopropylbenzene	98-82-8	1	U	1	1.16
10949	p-Isopropyltoluene	99-87-6	1	U	1	1.16
10949	Methyl Acetate	79-20-9	3	U	3	1.16
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.6	U	0.6	1.16
10949	4-Methyl-2-pentanone	108-10-1	4	U	4	1.16
10949	Methylcyclohexane	108-87-2	1	U	1	1.16
10949	Methylene Chloride	75-09-2	3	U	3	1.16
10949	Naphthalene	91-20-3	1	U	1	1.16

Sample Description: S15-SS03-0002-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502120
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 11:05 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

153-1 SDG#: DHR11-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	1.16
10949	Styrene	100-42-5	1	U	1	1.16
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	1.16
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	1.16
10949	Tetrachloroethene	127-18-4	1	U	1	1.16
10949	Toluene	108-88-3	1	U	1	1.16
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	1.16
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	1.16
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	1.16
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	1.16
10949	Trichloroethene	79-01-6	1	U	1	1.16
10949	Trichlorofluoromethane	75-69-4	3	U	3	1.16
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	1.16
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	1.16
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	1.16
10949	Vinyl Acetate	108-05-4	3	U	3	1.16
10949	Vinyl Chloride	75-01-4	1	U	1	1.16
10949	m+p-Xylene	179601-23-1	1	U	1	1.16
10949	o-Xylene	95-47-6	1	U	1	1.16

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 4-methyl-2-pentanone.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	140	J	36	10
10727	Acenaphthylene	208-96-8	230		36	10
10727	Anthracene	120-12-7	1,100		36	10
10727	Benzo(a)anthracene	56-55-3	6,100		36	10
10727	Benzo(a)pyrene	50-32-8	6,500		36	10
10727	Benzo(b)fluoranthene	205-99-2	8,700		36	10
10727	Benzo(g,h,i)perylene	191-24-2	4,700		36	10
10727	Benzo(k)fluoranthene	207-08-9	3,700		36	10
10727	Benzyl alcohol	100-51-6	1,800	U	1,800	10
10727	1,1'-Biphenyl	92-52-4	180	U	180	10
10727	4-Bromophenyl-phenylether	101-55-3	180	U	180	10
10727	Butylbenzylphthalate	85-68-7	710	U	710	10
10727	Di-n-butylphthalate	84-74-2	710	U	710	10
10727	Carbazole	86-74-8	480		180	10
10727	4-Chloro-3-methylphenol	59-50-7	180	U	180	10
10727	4-Chloroaniline	106-47-8	180	U	180	10
10727	bis(2-Chloroethoxy)methane	111-91-1	180	U	180	10
10727	bis(2-Chloroethyl)ether	111-44-4	180	U	180	10
10727	2-Chloronaphthalene	91-58-7	75	U	75	10
10727	2-Chlorophenol	95-57-8	180	U	180	10
10727	4-Chlorophenyl-phenylether	7005-72-3	180	U	180	10
10727	Chrysene	218-01-9	6,000		36	10
10727	Dibenz(a,h)anthracene	53-70-3	860		36	10
10727	Dibenzofuran	132-64-9	220	J	180	10
10727	3,3'-Dichlorobenzidine	91-94-1	1,100	U	1,100	10
10727	2,4-Dichlorophenol	120-83-2	180	U	180	10

Sample Description: S15-SS03-0002-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502120
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 11:05 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

153-1 SDG#: DHR11-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Diethylphthalate	84-66-2	710	U	710	10
10727	2,4-Dimethylphenol	105-67-9	180	U	180	10
10727	Dimethylphthalate	131-11-3	710	U	710	10
10727	4,6-Dinitro-2-methylphenol	534-52-1	1,800	U	1,800	10
10727	2,4-Dinitrophenol	51-28-5	3,600	U	3,600	10
10727	2,4-Dinitrotoluene	121-14-2	710	U	710	10
10727	2,6-Dinitrotoluene	606-20-2	180	U	180	10
10727	1,4-Dioxane	123-91-1	1,100	U	1,100	10
10727	bis(2-Ethylhexyl)phthalate	117-81-7	710	U	710	10
10727	Fluoranthene	206-44-0	15,000		36	10
10727	Fluorene	86-73-7	140	J	36	10
10727	Hexachlorobenzene	118-74-1	36	U	36	10
10727	Hexachlorocyclopentadiene	77-47-4	1,800	U	1,800	10
10727	Hexachloroethane	67-72-1	360	U	360	10
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4,500		36	10
10727	Isophorone	78-59-1	180	U	180	10
10727	2-Methylnaphthalene	91-57-6	36	U	36	10
10727	2-Methylphenol	95-48-7	180	U	180	10
10727	4-Methylphenol	106-44-5	180	U	180	10
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	180	U	180	10
10727	3-Nitroaniline	99-09-2	710	U	710	10
10727	4-Nitroaniline	100-01-6	710	U	710	10
10727	Nitrobenzene	98-95-3	180	U	180	10
10727	2-Nitrophenol	88-75-5	180	U	180	10
10727	4-Nitrophenol	100-02-7	1,800	U	1,800	10
10727	N-Nitroso-di-n-propylamine	621-64-7	180	U	180	10
10727	N-Nitrosodiphenylamine	86-30-6	180	U	180	10
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	710	U	710	10
10727	Pentachlorophenol	87-86-5	360	U	360	10
10727	Phenanthrene	85-01-8	6,500		36	10
10727	Phenol	108-95-2	180	U	180	10
10727	Pyrene	129-00-0	12,000		36	10
10727	2,4,5-Trichlorophenol	95-95-4	180	U	180	10
10727	2,4,6-Trichlorophenol	88-06-2	180	U	180	10
	Reporting limits were raised due to interference from the sample matrix.					
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	305		0.0193	1
06949	Cadmium	7440-43-9	0.316	J	0.0214	1
06951	Chromium	7440-47-3	16.1		0.150	1
06955	Lead	7439-92-1	7.63		0.236	1
06936	Selenium	7782-49-2	6.66		0.729	1
06966	Silver	7440-22-4	0.960		0.0889	1
	SW-846 6020		**mg/kg**		**mg/kg**	

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Analysis Report

Sample Description: S15-SS03-0002-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502120
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 11:05 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

153-1 SDG#: DHR11-04

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 6020**		**mg/kg**	**mg/kg**	
06125	Arsenic	7440-38-2	5.21	0.0841	2
	SW-846 7471A		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0076 U	0.0076	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	7.6	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	Q113562AA	12/23/2011 00:31	Sara E Johnson	1.16
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201135026461	12/16/2011 13:07	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201135026461	12/16/2011 13:07	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11354SLE026	12/28/2011 18:05	Linda M Hartenstine	10
10809	BNA Soil Microwave	SW-846 3546	1	11354SLE026	12/21/2011 07:30	Katheryne V Sponheimer	1
06946	Barium	SW-846 6010B	2	120045708004	01/05/2012 06:40	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	113535708001	12/30/2011 12:18	Joanne M Gates	1
06951	Chromium	SW-846 6010B	1	113535708001	12/30/2011 12:18	Joanne M Gates	1
06955	Lead	SW-846 6010B	1	113535708001	01/03/2012 23:14	John W Yanzuk II	1
06936	Selenium	SW-846 6010B	1	113535708001	01/03/2012 23:14	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	113535708001	01/03/2012 23:14	John W Yanzuk II	1
06125	Arsenic	SW-846 6020	1	113531026002A	12/22/2011 13:02	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113535711001	12/20/2011 08:43	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113535708001	12/19/2011 11:22	James L Mertz	1
05708	SW SW846 ICP Digest	SW-846 3050B	2	120045708004	01/04/2012 20:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113531026002	12/19/2011 10:58	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113535711001	12/19/2011 12:28	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11354820003A	12/20/2011 10:56	William C Schwebel	1

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Analysis Report

Sample Description: S15-SS03-0305-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502121
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 11:10 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

153-2 SDG#: DHR11-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	19	J	7	0.86
10949	Benzene	71-43-2	0.5	U	0.5	0.86
10949	Bromobenzene	108-86-1	1	U	1	0.86
10949	Bromochloromethane	74-97-5	1	U	1	0.86
10949	Bromodichloromethane	75-27-4	1	U	1	0.86
10949	Bromoform	75-25-2	1	U	1	0.86
10949	Bromomethane	74-83-9	2	U	2	0.86
10949	2-Butanone	78-93-3	4	U	4	0.86
10949	n-Butylbenzene	104-51-8	1	U	1	0.86
10949	sec-Butylbenzene	135-98-8	2	J	1	0.86
10949	tert-Butylbenzene	98-06-6	1	U	1	0.86
10949	Carbon Disulfide	75-15-0	1	J	1	0.86
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.86
10949	Chlorobenzene	108-90-7	1	U	1	0.86
10949	Chloroethane	75-00-3	2	U	2	0.86
10949	Chloroform	67-66-3	1	U	1	0.86
10949	Chloromethane	74-87-3	2	U	2	0.86
10949	2-Chlorotoluene	95-49-8	1	U	1	0.86
10949	4-Chlorotoluene	106-43-4	1	U	1	0.86
10949	Cyclohexane	110-82-7	1	U	1	0.86
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.86
10949	Dibromochloromethane	124-48-1	1	U	1	0.86
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.86
10949	Dibromomethane	74-95-3	1	U	1	0.86
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.86
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.86
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.86
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.86
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.86
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.86
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.86
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.86
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.86
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.86
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.86
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.86
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.86
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.86
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.86
10949	Ethylbenzene	100-41-4	4	J	1	0.86
10949	Freon 113	76-13-1	2	U	2	0.86
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.86
10949	2-Hexanone	591-78-6	3	U	3	0.86
10949	Isopropylbenzene	98-82-8	1	U	1	0.86
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.86
10949	Methyl Acetate	79-20-9	2	U	2	0.86
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.86
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.86
10949	Methylcyclohexane	108-87-2	1	U	1	0.86
10949	Methylene Chloride	75-09-2	2	U	2	0.86
10949	Naphthalene	91-20-3	1	U	1	0.86

Sample Description: S15-SS03-0305-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502121
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 11:10 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

153-2 SDG#: DHR11-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.86
10949	Styrene	100-42-5	1	U	1	0.86
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.86
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.86
10949	Tetrachloroethene	127-18-4	1	U	1	0.86
10949	Toluene	108-88-3	1	U	1	0.86
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.86
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.86
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.86
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.86
10949	Trichloroethene	79-01-6	1	U	1	0.86
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.86
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.86
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.86
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.86
10949	Vinyl Acetate	108-05-4	2	U	2	0.86
10949	Vinyl Chloride	75-01-4	1	U	1	0.86
10949	m+p-Xylene	179601-23-1	1	U	1	0.86
10949	o-Xylene	95-47-6	1	U	1	0.86

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 4-methyl-2-pentanone.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	15	J	4	1
10727	Acenaphthylene	208-96-8	10	J	4	1
10727	Anthracene	120-12-7	21		4	1
10727	Benzo(a)anthracene	56-55-3	81		4	1
10727	Benzo(a)pyrene	50-32-8	97		4	1
10727	Benzo(b)fluoranthene	205-99-2	110		4	1
10727	Benzo(g,h,i)perylene	191-24-2	64		4	1
10727	Benzo(k)fluoranthene	207-08-9	62		4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	20	U	20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	79	U	79	1
10727	Di-n-butylphthalate	84-74-2	79	U	79	1
10727	Carbazole	86-74-8	20	U	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	8	U	8	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	88		4	1
10727	Dibenz(a,h)anthracene	53-70-3	10	J	4	1
10727	Dibenzofuran	132-64-9	20	U	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1

Sample Description: S15-SS03-0305-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502121
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 11:10 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

153-2 SDG#: DHR11-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Diethylphthalate	84-66-2	79	U	79	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	79	U	79	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1
10727	2,4-Dinitrophenol	51-28-5	400	U	400	1
10727	2,4-Dinitrotoluene	121-14-2	79	U	79	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	79	U	79	1
10727	Fluoranthene	206-44-0	230		4	1
10727	Fluorene	86-73-7	24		4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	40	U	40	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	55		4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	8	J	4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	79	U	79	1
10727	4-Nitroaniline	100-01-6	79	U	79	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	79	U	79	1
10727	Pentachlorophenol	87-86-5	40	U	40	1
10727	Phenanthrene	85-01-8	140		4	1
10727	Phenol	108-95-2	20	U	20	1
10727	Pyrene	129-00-0	180		4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	133		0.0211	1
06949	Cadmium	7440-43-9	0.622		0.0237	1
06951	Chromium	7440-47-3	22.5		0.166	1
06955	Lead	7439-92-1	13.1		0.260	1
06936	Selenium	7782-49-2	0.804	U	0.804	1
06966	Silver	7440-22-4	0.0982	U	0.0982	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	12.1		0.0955	2

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Analysis Report

Sample Description: S15-SS03-0305-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502121
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 11:10 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

153-2 SDG#: DHR11-05

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0184 J	0.0079	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	17.1	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	Q113562AA	12/23/2011 00:54	Sara E Johnson	0.86
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201135026461	12/16/2011 13:09	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201135026461	12/16/2011 13:09	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201135026461	12/16/2011 13:08	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11354SLE026	12/28/2011 11:37	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	11354SLE026	12/21/2011 07:30	Katheryne V Sponheimer	1
06946	Barium	SW-846 6010B	2	120045708004	01/05/2012 06:45	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	113535708001	12/30/2011 13:01	Joanne M Gates	1
06951	Chromium	SW-846 6010B	1	113535708001	12/30/2011 13:01	Joanne M Gates	1
06955	Lead	SW-846 6010B	1	113535708001	12/30/2011 13:01	Joanne M Gates	1
06936	Selenium	SW-846 6010B	1	113535708001	01/04/2012 00:11	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	113535708001	12/30/2011 13:01	Joanne M Gates	1
06125	Arsenic	SW-846 6020	1	113531026002A	12/22/2011 13:04	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113535711001	12/20/2011 08:44	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113535708001	12/19/2011 11:22	James L Mertz	1
05708	SW SW846 ICP Digest	SW-846 3050B	2	120045708004	01/04/2012 20:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113531026002	12/19/2011 10:58	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113535711001	12/19/2011 12:28	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11354820003A	12/20/2011 10:56	William C Schwebel	1

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Analysis Report

Sample Description: S15-SS03-0810-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502122
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 11:15 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

153-3 SDG#: DHR11-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	390	U	390	44.09
10949	Benzene	71-43-2	28	U	28	44.09
10949	Bromobenzene	108-86-1	55	U	55	44.09
10949	Bromochloromethane	74-97-5	55	U	55	44.09
10949	Bromodichloromethane	75-27-4	55	U	55	44.09
10949	Bromoform	75-25-2	55	U	55	44.09
10949	Bromomethane	74-83-9	110	U	110	44.09
10949	2-Butanone	78-93-3	220	U	220	44.09
10949	n-Butylbenzene	104-51-8	89	J	55	44.09
10949	sec-Butylbenzene	135-98-8	2,600		55	44.09
10949	tert-Butylbenzene	98-06-6	55	U	55	44.09
10949	Carbon Disulfide	75-15-0	55	U	55	44.09
10949	Carbon Tetrachloride	56-23-5	55	U	55	44.09
10949	Chlorobenzene	108-90-7	55	U	55	44.09
10949	Chloroethane	75-00-3	110	U	110	44.09
10949	Chloroform	67-66-3	55	U	55	44.09
10949	Chloromethane	74-87-3	110	U	110	44.09
10949	2-Chlorotoluene	95-49-8	55	U	55	44.09
10949	4-Chlorotoluene	106-43-4	55	U	55	44.09
10949	Cyclohexane	110-82-7	55	U	55	44.09
10949	1,2-Dibromo-3-chloropropane	96-12-8	110	U	110	44.09
10949	Dibromochloromethane	124-48-1	55	U	55	44.09
10949	1,2-Dibromoethane	106-93-4	55	U	55	44.09
10949	Dibromomethane	74-95-3	55	U	55	44.09
10949	1,2-Dichlorobenzene	95-50-1	55	U	55	44.09
10949	1,3-Dichlorobenzene	541-73-1	55	U	55	44.09
10949	1,4-Dichlorobenzene	106-46-7	55	U	55	44.09
10949	Dichlorodifluoromethane	75-71-8	110	U	110	44.09
10949	1,1-Dichloroethane	75-34-3	55	U	55	44.09
10949	1,2-Dichloroethane	107-06-2	55	U	55	44.09
10949	1,1-Dichloroethene	75-35-4	55	U	55	44.09
10949	cis-1,2-Dichloroethene	156-59-2	55	U	55	44.09
10949	trans-1,2-Dichloroethene	156-60-5	55	U	55	44.09
10949	1,2-Dichloropropane	78-87-5	55	U	55	44.09
10949	1,3-Dichloropropane	142-28-9	55	U	55	44.09
10949	2,2-Dichloropropane	594-20-7	55	U	55	44.09
10949	1,1-Dichloropropene	563-58-6	55	U	55	44.09
10949	cis-1,3-Dichloropropene	10061-01-5	55	U	55	44.09
10949	trans-1,3-Dichloropropene	10061-02-6	55	U	55	44.09
10949	Ethylbenzene	100-41-4	330		55	44.09
10949	Freon 113	76-13-1	110	U	110	44.09
10949	Hexachlorobutadiene	87-68-3	110	U	110	44.09
10949	2-Hexanone	591-78-6	170	U	170	44.09
10949	Isopropylbenzene	98-82-8	1,900		55	44.09
10949	p-Isopropyltoluene	99-87-6	55	U	55	44.09
10949	Methyl Acetate	79-20-9	170	J	110	44.09
10949	Methyl Tertiary Butyl Ether	1634-04-4	28	U	28	44.09
10949	4-Methyl-2-pentanone	108-10-1	170	U	170	44.09
10949	Methylcyclohexane	108-87-2	55	U	55	44.09
10949	Methylene Chloride	75-09-2	110	U	110	44.09
10949	Naphthalene	91-20-3	68	J	55	44.09

Sample Description: S15-SS03-0810-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502122
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 11:15 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

153-3 SDG#: DHR11-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	360		55	44.09
10949	Styrene	100-42-5	55	U	55	44.09
10949	1,1,1,2-Tetrachloroethane	630-20-6	55	U	55	44.09
10949	1,1,2,2-Tetrachloroethane	79-34-5	55	U	55	44.09
10949	Tetrachloroethene	127-18-4	55	U	55	44.09
10949	Toluene	108-88-3	55	U	55	44.09
10949	1,2,3-Trichlorobenzene	87-61-6	140	J	55	44.09
10949	1,2,4-Trichlorobenzene	120-82-1	100	J	55	44.09
10949	1,1,1-Trichloroethane	71-55-6	55	U	55	44.09
10949	1,1,2-Trichloroethane	79-00-5	55	U	55	44.09
10949	Trichloroethene	79-01-6	55	U	55	44.09
10949	Trichlorofluoromethane	75-69-4	110	U	110	44.09
10949	1,2,3-Trichloropropane	96-18-4	55	U	55	44.09
10949	1,2,4-Trimethylbenzene	95-63-6	55	U	55	44.09
10949	1,3,5-Trimethylbenzene	108-67-8	55	U	55	44.09
10949	Vinyl Acetate	108-05-4	110	U	110	44.09
10949	Vinyl Chloride	75-01-4	55	U	55	44.09
10949	m+p-Xylene	179601-23-1	55	U	55	44.09
10949	o-Xylene	95-47-6	55	U	55	44.09
Trial ID: RE						
10949	Acetone	67-64-1	390	U	390	44.09
10949	Benzene	71-43-2	28	U	28	44.09
10949	Bromobenzene	108-86-1	55	U	55	44.09
10949	Bromochloromethane	74-97-5	55	U	55	44.09
10949	Bromodichloromethane	75-27-4	55	U	55	44.09
10949	Bromoform	75-25-2	55	U	55	44.09
10949	Bromomethane	74-83-9	110	U	110	44.09
10949	2-Butanone	78-93-3	220	U	220	44.09
10949	n-Butylbenzene	104-51-8	56	J	55	44.09
10949	sec-Butylbenzene	135-98-8	2,400		55	44.09
10949	tert-Butylbenzene	98-06-6	55	U	55	44.09
10949	Carbon Disulfide	75-15-0	55	U	55	44.09
10949	Carbon Tetrachloride	56-23-5	55	U	55	44.09
10949	Chlorobenzene	108-90-7	55	U	55	44.09
10949	Chloroethane	75-00-3	110	U	110	44.09
10949	Chloroform	67-66-3	55	U	55	44.09
10949	Chloromethane	74-87-3	110	U	110	44.09
10949	2-Chlorotoluene	95-49-8	55	U	55	44.09
10949	4-Chlorotoluene	106-43-4	55	U	55	44.09
10949	Cyclohexane	110-82-7	55	U	55	44.09
10949	1,2-Dibromo-3-chloropropane	96-12-8	110	U	110	44.09
10949	Dibromochloromethane	124-48-1	55	U	55	44.09
10949	1,2-Dibromoethane	106-93-4	55	U	55	44.09
10949	Dibromomethane	74-95-3	55	U	55	44.09
10949	1,2-Dichlorobenzene	95-50-1	55	U	55	44.09
10949	1,3-Dichlorobenzene	541-73-1	55	U	55	44.09
10949	1,4-Dichlorobenzene	106-46-7	55	U	55	44.09
10949	Dichlorodifluoromethane	75-71-8	110	U	110	44.09
10949	1,1-Dichloroethane	75-34-3	55	U	55	44.09
10949	1,2-Dichloroethane	107-06-2	55	U	55	44.09

Sample Description: S15-SS03-0810-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502122
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 11:15 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

153-3 SDG#: DHR11-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	1,1-Dichloroethene	75-35-4	55	U	55	44.09
10949	cis-1,2-Dichloroethene	156-59-2	55	U	55	44.09
10949	trans-1,2-Dichloroethene	156-60-5	55	U	55	44.09
10949	1,2-Dichloropropane	78-87-5	55	U	55	44.09
10949	1,3-Dichloropropane	142-28-9	55	U	55	44.09
10949	2,2-Dichloropropane	594-20-7	55	U	55	44.09
10949	1,1-Dichloropropene	563-58-6	55	U	55	44.09
10949	cis-1,3-Dichloropropene	10061-01-5	55	U	55	44.09
10949	trans-1,3-Dichloropropene	10061-02-6	55	U	55	44.09
10949	Ethylbenzene	100-41-4	360		55	44.09
10949	Freon 113	76-13-1	110	U	110	44.09
10949	Hexachlorobutadiene	87-68-3	110	U	110	44.09
10949	2-Hexanone	591-78-6	170	U	170	44.09
10949	Isopropylbenzene	98-82-8	1,900		55	44.09
10949	p-Isopropyltoluene	99-87-6	55	U	55	44.09
10949	Methyl Acetate	79-20-9	150	J	110	44.09
10949	Methyl Tertiary Butyl Ether	1634-04-4	28	U	28	44.09
10949	4-Methyl-2-pentanone	108-10-1	170	U	170	44.09
10949	Methylcyclohexane	108-87-2	55	U	55	44.09
10949	Methylene Chloride	75-09-2	110	U	110	44.09
10949	Naphthalene	91-20-3	55	U	55	44.09
10949	n-Propylbenzene	103-65-1	340		55	44.09
10949	Styrene	100-42-5	55	U	55	44.09
10949	1,1,1,2-Tetrachloroethane	630-20-6	55	U	55	44.09
10949	1,1,2,2-Tetrachloroethane	79-34-5	55	U	55	44.09
10949	Tetrachloroethene	127-18-4	55	U	55	44.09
10949	Toluene	108-88-3	55	U	55	44.09
10949	1,2,3-Trichlorobenzene	87-61-6	55	U	55	44.09
10949	1,2,4-Trichlorobenzene	120-82-1	55	U	55	44.09
10949	1,1,1-Trichloroethane	71-55-6	55	U	55	44.09
10949	1,1,2-Trichloroethane	79-00-5	55	U	55	44.09
10949	Trichloroethene	79-01-6	55	U	55	44.09
10949	Trichlorofluoromethane	75-69-4	110	U	110	44.09
10949	1,2,3-Trichloropropane	96-18-4	55	U	55	44.09
10949	1,2,4-Trimethylbenzene	95-63-6	55	U	55	44.09
10949	1,3,5-Trimethylbenzene	108-67-8	55	U	55	44.09
10949	Vinyl Acetate	108-05-4	110	U	110	44.09
10949	Vinyl Chloride	75-01-4	55	U	55	44.09
10949	m+p-Xylene	179601-23-1	55	U	55	44.09
10949	o-Xylene	95-47-6	55	U	55	44.09

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 1,2,3-trichlorobenzene.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	8	J	4	1
10727	Anthracene	120-12-7	9	J	4	1
10727	Benzo(a)anthracene	56-55-3	47		4	1
10727	Benzo(a)pyrene	50-32-8	64		4	1

Sample Description: S15-SS03-0810-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502122
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 11:15 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

153-3 SDG#: DHR11-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C			**ug/kg**		**ug/kg**	
10727	Benzo(b)fluoranthene	205-99-2	79		4	1
10727	Benzo(g,h,i)perylene	191-24-2	45		4	1
10727	Benzo(k)fluoranthene	207-08-9	40		4	1
10727	Benzyl alcohol	100-51-6	210	U	210	1
10727	1,1'-Biphenyl	92-52-4	21	U	21	1
10727	4-Bromophenyl-phenylether	101-55-3	21	U	21	1
10727	Butylbenzylphthalate	85-68-7	83	U	83	1
10727	Di-n-butylphthalate	84-74-2	83	U	83	1
10727	Carbazole	86-74-8	21	U	21	1
10727	4-Chloro-3-methylphenol	59-50-7	21	U	21	1
10727	4-Chloroaniline	106-47-8	21	U	21	1
10727	bis(2-Chloroethoxy)methane	111-91-1	21	U	21	1
10727	bis(2-Chloroethyl)ether	111-44-4	21	U	21	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	21	U	21	1
10727	4-Chlorophenyl-phenylether	7005-72-3	21	U	21	1
10727	Chrysene	218-01-9	61		4	1
10727	Dibenz(a,h)anthracene	53-70-3	6	J	4	1
10727	Dibenzofuran	132-64-9	21	U	21	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	21	U	21	1
10727	Diethylphthalate	84-66-2	83	U	83	1
10727	2,4-Dimethylphenol	105-67-9	21	U	21	1
10727	Dimethylphthalate	131-11-3	83	U	83	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	210	U	210	1
10727	2,4-Dinitrophenol	51-28-5	420	U	420	1
10727	2,4-Dinitrotoluene	121-14-2	83	U	83	1
10727	2,6-Dinitrotoluene	606-20-2	21	U	21	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	83	U	83	1
10727	Fluoranthene	206-44-0	160		4	1
10727	Fluorene	86-73-7	7	J	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	210	U	210	1
10727	Hexachloroethane	67-72-1	42	U	42	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	37		4	1
10727	Isophorone	78-59-1	21	U	21	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	21	U	21	1
10727	4-Methylphenol	106-44-5	21	U	21	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	21	U	21	1
10727	3-Nitroaniline	99-09-2	83	U	83	1
10727	4-Nitroaniline	100-01-6	83	U	83	1
10727	Nitrobenzene	98-95-3	21	U	21	1
10727	2-Nitrophenol	88-75-5	21	U	21	1
10727	4-Nitrophenol	100-02-7	210	U	210	1
10727	N-Nitroso-di-n-propylamine	621-64-7	21	U	21	1
10727	N-Nitrosodiphenylamine	86-30-6	21	U	21	1

Sample Description: S15-SS03-0810-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502122
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 11:15 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

153-3 SDG#: DHR11-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	83	U	83	1
10727	Pentachlorophenol	87-86-5	42	U	42	1
10727	Phenanthrene	85-01-8	83		4	1
10727	Phenol	108-95-2	21	U	21	1
10727	Pyrene	129-00-0	130		4	1
10727	2,4,5-Trichlorophenol	95-95-4	21	U	21	1
10727	2,4,6-Trichlorophenol	88-06-2	21	U	21	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	178		0.0222	1
06949	Cadmium	7440-43-9	0.621	J	0.0249	1
06951	Chromium	7440-47-3	19.3		0.174	1
06955	Lead	7439-92-1	16.5		0.274	1
06936	Selenium	7782-49-2	1.00	J	0.847	1
06966	Silver	7440-22-4	0.103	U	0.103	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	7.25		0.0977	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0238	J	0.0084	1
Wet Chemistry	**SM20 2540 G**		**%**		**%**	
00111	Moisture	n.a.	20.5		0.50	1
	"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.					

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	R113631AA	12/29/2011 12:51	Kerri E Legerlotz	44.09
10949	8260 Ext. Soil Master	SW-846 8260B	2	R113631AA	12/29/2011 18:58	Kerri E Legerlotz	44.09
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201135026461	12/16/2011 13:11	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201135026461	12/16/2011 13:11	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201135026461	12/16/2011 13:10	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11354SLE026	12/28/2011 12:01	Linda M Hartenstine	1

Sample Description: S15-SS03-0810-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502122
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 11:15 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

153-3 SDG#: DHR11-06

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10809	BNA Soil Microwave	SW-846 3546	1	11354SLE026	12/21/2011 07:30	Katheryne V Sponheimer	1
06946	Barium	SW-846 6010B	2	120045708004	01/05/2012 06:49	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	113535708001	12/30/2011 13:05	Joanne M Gates	1
06951	Chromium	SW-846 6010B	1	113535708001	12/30/2011 13:05	Joanne M Gates	1
06955	Lead	SW-846 6010B	1	113535708001	12/30/2011 13:05	Joanne M Gates	1
06936	Selenium	SW-846 6010B	1	113535708001	01/04/2012 00:15	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	113535708001	12/30/2011 13:05	Joanne M Gates	1
06125	Arsenic	SW-846 6020	1	113531026002A	12/22/2011 13:05	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113535711001	12/20/2011 08:45	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113535708001	12/19/2011 11:22	James L Mertz	1
05708	SW SW846 ICP Digest	SW-846 3050B	2	120045708004	01/04/2012 20:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113531026002	12/19/2011 10:58	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113535711001	12/19/2011 12:28	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11354820003A	12/20/2011 10:56	William C Schwebel	1

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Analysis Report

Sample Description: S15-SS03-1315-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502123
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 13:30 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

153-4 SDG#: DHR11-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	11	J	8	0.92
10949	Benzene	71-43-2	0.6	U	0.6	0.92
10949	Bromobenzene	108-86-1	1	U	1	0.92
10949	Bromochloromethane	74-97-5	1	U	1	0.92
10949	Bromodichloromethane	75-27-4	1	U	1	0.92
10949	Bromoform	75-25-2	1	U	1	0.92
10949	Bromomethane	74-83-9	2	U	2	0.92
10949	2-Butanone	78-93-3	4	U	4	0.92
10949	n-Butylbenzene	104-51-8	3	J	1	0.92
10949	sec-Butylbenzene	135-98-8	120		1	0.92
10949	tert-Butylbenzene	98-06-6	1	U	1	0.92
10949	Carbon Disulfide	75-15-0	1	U	1	0.92
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.92
10949	Chlorobenzene	108-90-7	1	U	1	0.92
10949	Chloroethane	75-00-3	2	U	2	0.92
10949	Chloroform	67-66-3	1	U	1	0.92
10949	Chloromethane	74-87-3	2	U	2	0.92
10949	2-Chlorotoluene	95-49-8	1	U	1	0.92
10949	4-Chlorotoluene	106-43-4	1	U	1	0.92
10949	Cyclohexane	110-82-7	1	U	1	0.92
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.92
10949	Dibromochloromethane	124-48-1	1	U	1	0.92
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.92
10949	Dibromomethane	74-95-3	1	U	1	0.92
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.92
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.92
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.92
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.92
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.92
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.92
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.92
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.92
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.92
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.92
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.92
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.92
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.92
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.92
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.92
10949	Ethylbenzene	100-41-4	1	U	1	0.92
10949	Freon 113	76-13-1	2	U	2	0.92
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.92
10949	2-Hexanone	591-78-6	3	U	3	0.92
10949	Isopropylbenzene	98-82-8	66		1	0.92
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.92
10949	Methyl Acetate	79-20-9	2	U	2	0.92
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.6	U	0.6	0.92
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.92
10949	Methylcyclohexane	108-87-2	1	U	1	0.92
10949	Methylene Chloride	75-09-2	2	U	2	0.92
10949	Naphthalene	91-20-3	1	U	1	0.92

Sample Description: S15-SS03-1315-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502123
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 13:30 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

153-4 SDG#: DHR11-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	4	J	1	0.92
10949	Styrene	100-42-5	1	U	1	0.92
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.92
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.92
10949	Tetrachloroethene	127-18-4	1	U	1	0.92
10949	Toluene	108-88-3	1	U	1	0.92
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.92
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.92
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.92
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.92
10949	Trichloroethene	79-01-6	1	U	1	0.92
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.92
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.92
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.92
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.92
10949	Vinyl Acetate	108-05-4	2	U	2	0.92
10949	Vinyl Chloride	75-01-4	1	U	1	0.92
10949	m+p-Xylene	179601-23-1	1	U	1	0.92
10949	o-Xylene	95-47-6	1	U	1	0.92
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	20	U	20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	81	U	81	1
10727	Di-n-butylphthalate	84-74-2	81	U	81	1
10727	Carbazole	86-74-8	20	U	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	8	U	8	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	20	U	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1
10727	Diethylphthalate	84-66-2	81	U	81	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	81	U	81	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1

Sample Description: S15-SS03-1315-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502123
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 13:30 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

153-4 SDG#: DHR11-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	400	U	400	1
10727	2,4-Dinitrotoluene	121-14-2	81	U	81	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	81	U	81	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	40	U	40	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	81	U	81	1
10727	4-Nitroaniline	100-01-6	81	U	81	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	81	U	81	1
10727	Pentachlorophenol	87-86-5	40	U	40	1
10727	Phenanthrene	85-01-8	9	J	4	1
10727	Phenol	108-95-2	20	U	20	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	189		0.0211	1
06949	Cadmium	7440-43-9	0.686		0.0241	1
06951	Chromium	7440-47-3	23.7		0.169	1
06955	Lead	7439-92-1	11.0		0.265	1
06936	Selenium	7782-49-2	0.820	U	0.820	1
06966	Silver	7440-22-4	0.100	U	0.100	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	6.04		0.0937	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0246	J	0.0082	1

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Analysis Report

Sample Description: S15-SS03-1315-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502123
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 13:30 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

153-4 SDG#: DHR11-07

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	17.9	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113611AA	12/27/2011 21:09	Chelsea B Eastep	0.92
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201135026461	12/16/2011 13:13	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201135026461	12/16/2011 13:13	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201135026461	12/16/2011 13:12	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11354SLE026	12/28/2011 12:25	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	11354SLE026	12/21/2011 07:30	Katheryne V Sponheimer	1
06946	Barium	SW-846 6010B	2	120045708004	01/05/2012 06:53	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	113535708001	12/30/2011 13:08	Joanne M Gates	1
06951	Chromium	SW-846 6010B	1	113535708001	12/30/2011 13:08	Joanne M Gates	1
06955	Lead	SW-846 6010B	1	113535708001	12/30/2011 13:08	Joanne M Gates	1
06936	Selenium	SW-846 6010B	1	113535708001	01/04/2012 00:19	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	113535708001	12/30/2011 13:08	Joanne M Gates	1
06125	Arsenic	SW-846 6020	1	113531026002A	12/22/2011 13:07	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113535711001	12/20/2011 08:46	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113535708001	12/19/2011 11:22	James L Mertz	1
05708	SW SW846 ICP Digest	SW-846 3050B	2	120045708004	01/04/2012 20:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113531026002	12/19/2011 10:58	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113535711001	12/19/2011 12:28	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11354820003A	12/20/2011 10:56	William C Schwebel	1

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Analysis Report

Sample Description: S15-SS01-0002-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502124
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 11:40 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

151-1 SDG#: DHR11-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	97		8	0.92
10949	Benzene	71-43-2	0.6	U	0.6	0.92
10949	Bromobenzene	108-86-1	1	U	1	0.92
10949	Bromochloromethane	74-97-5	1	U	1	0.92
10949	Bromodichloromethane	75-27-4	1	U	1	0.92
10949	Bromoform	75-25-2	1	U	1	0.92
10949	Bromomethane	74-83-9	2	U	2	0.92
10949	2-Butanone	78-93-3	11	J	4	0.92
10949	n-Butylbenzene	104-51-8	1	U	1	0.92
10949	sec-Butylbenzene	135-98-8	1	U	1	0.92
10949	tert-Butylbenzene	98-06-6	1	U	1	0.92
10949	Carbon Disulfide	75-15-0	1	U	1	0.92
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.92
10949	Chlorobenzene	108-90-7	1	U	1	0.92
10949	Chloroethane	75-00-3	2	U	2	0.92
10949	Chloroform	67-66-3	1	U	1	0.92
10949	Chloromethane	74-87-3	2	U	2	0.92
10949	2-Chlorotoluene	95-49-8	1	U	1	0.92
10949	4-Chlorotoluene	106-43-4	1	U	1	0.92
10949	Cyclohexane	110-82-7	1	U	1	0.92
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.92
10949	Dibromochloromethane	124-48-1	1	U	1	0.92
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.92
10949	Dibromomethane	74-95-3	1	U	1	0.92
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.92
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.92
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.92
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.92
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.92
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.92
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.92
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.92
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.92
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.92
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.92
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.92
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.92
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.92
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.92
10949	Ethylbenzene	100-41-4	1	U	1	0.92
10949	Freon 113	76-13-1	2	U	2	0.92
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.92
10949	2-Hexanone	591-78-6	3	U	3	0.92
10949	Isopropylbenzene	98-82-8	1	U	1	0.92
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.92
10949	Methyl Acetate	79-20-9	2	U	2	0.92
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.6	U	0.6	0.92
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.92
10949	Methylcyclohexane	108-87-2	1	U	1	0.92
10949	Methylene Chloride	75-09-2	2	U	2	0.92
10949	Naphthalene	91-20-3	1	U	1	0.92

Sample Description: S15-SS01-0002-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502124
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 11:40 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

151-1 SDG#: DHR11-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.92
10949	Styrene	100-42-5	1	U	1	0.92
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.92
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.92
10949	Tetrachloroethene	127-18-4	1	U	1	0.92
10949	Toluene	108-88-3	1	U	1	0.92
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.92
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.92
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.92
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.92
10949	Trichloroethene	79-01-6	1	U	1	0.92
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.92
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.92
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.92
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.92
10949	Vinyl Acetate	108-05-4	2	U	2	0.92
10949	Vinyl Chloride	75-01-4	1	U	1	0.92
10949	m+p-Xylene	179601-23-1	1	U	1	0.92
10949	o-Xylene	95-47-6	1	U	1	0.92
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	12	J	4	1
10727	Acenaphthylene	208-96-8	7	J	4	1
10727	Anthracene	120-12-7	41		4	1
10727	Benzo(a)anthracene	56-55-3	110		4	1
10727	Benzo(a)pyrene	50-32-8	110		4	1
10727	Benzo(b)fluoranthene	205-99-2	170		4	1
10727	Benzo(g,h,i)perylene	191-24-2	80		4	1
10727	Benzo(k)fluoranthene	207-08-9	62		4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	20	U	20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	80	U	80	1
10727	Di-n-butylphthalate	84-74-2	80	U	80	1
10727	Carbazole	86-74-8	23	J	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	8	U	8	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	120		4	1
10727	Dibenz(a,h)anthracene	53-70-3	13	J	4	1
10727	Dibenzofuran	132-64-9	20	U	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1
10727	Diethylphthalate	84-66-2	80	U	80	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	80	U	80	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1

Sample Description: S15-SS01-0002-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502124
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 11:40 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

151-1 SDG#: DHR11-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	400	U	400	1
10727	2,4-Dinitrotoluene	121-14-2	80	U	80	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	80	U	80	1
10727	Fluoranthene	206-44-0	280		4	1
10727	Fluorene	86-73-7	15	J	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	40	U	40	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	73		4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	18	J	4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	80	U	80	1
10727	4-Nitroaniline	100-01-6	80	U	80	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	80	U	80	1
10727	Pentachlorophenol	87-86-5	40	U	40	1
10727	Phenanthrene	85-01-8	180		4	1
10727	Phenol	108-95-2	20	U	20	1
10727	Pyrene	129-00-0	230		4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	129		0.0211	1
06949	Cadmium	7440-43-9	0.443	J	0.0232	1
06951	Chromium	7440-47-3	14.7		0.162	1
06955	Lead	7439-92-1	9.72		0.255	1
06936	Selenium	7782-49-2	0.788	U	0.788	1
06966	Silver	7440-22-4	0.0962	U	0.0962	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	10.7		0.0954	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0350	J	0.0082	1

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Analysis Report

Sample Description: S15-SS01-0002-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502124
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 11:40 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

151-1 SDG#: DHR11-08

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	17.8	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113611AA	12/27/2011 18:53	Chelsea B Eastep	0.92
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201135026461	12/16/2011 13:14	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201135026461	12/16/2011 13:15	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201135026461	12/16/2011 13:14	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11354SLE026	12/28/2011 12:50	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	11354SLE026	12/21/2011 07:30	Katheryne V Sponheimer	1
06946	Barium	SW-846 6010B	2	120045708004	01/05/2012 06:57	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	113535708001	12/30/2011 13:12	Joanne M Gates	1
06951	Chromium	SW-846 6010B	1	113535708001	12/30/2011 13:12	Joanne M Gates	1
06955	Lead	SW-846 6010B	1	113535708001	12/30/2011 13:12	Joanne M Gates	1
06936	Selenium	SW-846 6010B	1	113535708001	01/04/2012 00:23	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	113535708001	12/30/2011 13:12	Joanne M Gates	1
06125	Arsenic	SW-846 6020	1	113531026002A	12/22/2011 13:08	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113535711001	12/20/2011 08:47	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113535708001	12/19/2011 11:22	James L Mertz	1
05708	SW SW846 ICP Digest	SW-846 3050B	2	120045708004	01/04/2012 20:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113531026002	12/19/2011 10:58	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113535711001	12/19/2011 12:28	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11354820003A	12/20/2011 10:56	William C Schwebel	1

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Analysis Report

Sample Description: S15-SS01-0305-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502125
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 11:45 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

151-2 SDG#: DHR11-09

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	71		7	0.89
10949	Benzene	71-43-2	0.5	U	0.5	0.89
10949	Bromobenzene	108-86-1	1	U	1	0.89
10949	Bromochloromethane	74-97-5	1	U	1	0.89
10949	Bromodichloromethane	75-27-4	1	U	1	0.89
10949	Bromoform	75-25-2	1	U	1	0.89
10949	Bromomethane	74-83-9	2	U	2	0.89
10949	2-Butanone	78-93-3	6	J	4	0.89
10949	n-Butylbenzene	104-51-8	1	U	1	0.89
10949	sec-Butylbenzene	135-98-8	1	U	1	0.89
10949	tert-Butylbenzene	98-06-6	1	U	1	0.89
10949	Carbon Disulfide	75-15-0	1	U	1	0.89
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.89
10949	Chlorobenzene	108-90-7	1	U	1	0.89
10949	Chloroethane	75-00-3	2	U	2	0.89
10949	Chloroform	67-66-3	1	U	1	0.89
10949	Chloromethane	74-87-3	2	U	2	0.89
10949	2-Chlorotoluene	95-49-8	1	U	1	0.89
10949	4-Chlorotoluene	106-43-4	1	U	1	0.89
10949	Cyclohexane	110-82-7	1	U	1	0.89
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.89
10949	Dibromochloromethane	124-48-1	1	U	1	0.89
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.89
10949	Dibromomethane	74-95-3	1	U	1	0.89
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.89
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.89
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.89
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.89
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.89
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.89
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.89
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.89
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.89
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.89
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.89
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.89
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.89
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.89
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.89
10949	Ethylbenzene	100-41-4	1	U	1	0.89
10949	Freon 113	76-13-1	2	U	2	0.89
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.89
10949	2-Hexanone	591-78-6	3	U	3	0.89
10949	Isopropylbenzene	98-82-8	1	U	1	0.89
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.89
10949	Methyl Acetate	79-20-9	2	U	2	0.89
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.89
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.89
10949	Methylcyclohexane	108-87-2	1	U	1	0.89
10949	Methylene Chloride	75-09-2	2	U	2	0.89
10949	Naphthalene	91-20-3	1	U	1	0.89

Sample Description: S15-SS01-0305-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502125
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 11:45 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

151-2 SDG#: DHR11-09

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.89
10949	Styrene	100-42-5	1	U	1	0.89
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.89
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.89
10949	Tetrachloroethene	127-18-4	1	U	1	0.89
10949	Toluene	108-88-3	1	U	1	0.89
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.89
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.89
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.89
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.89
10949	Trichloroethene	79-01-6	1	U	1	0.89
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.89
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.89
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.89
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.89
10949	Vinyl Acetate	108-05-4	2	U	2	0.89
10949	Vinyl Chloride	75-01-4	1	U	1	0.89
10949	m+p-Xylene	179601-23-1	1	U	1	0.89
10949	o-Xylene	95-47-6	1	U	1	0.89
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	23		4	1
10727	Acenaphthylene	208-96-8	11	J	4	1
10727	Anthracene	120-12-7	19	J	4	1
10727	Benzo(a)anthracene	56-55-3	60		4	1
10727	Benzo(a)pyrene	50-32-8	66		4	1
10727	Benzo(b)fluoranthene	205-99-2	98		4	1
10727	Benzo(g,h,i)perylene	191-24-2	49		4	1
10727	Benzo(k)fluoranthene	207-08-9	37		4	1
10727	Benzyl alcohol	100-51-6	190	U	190	1
10727	1,1'-Biphenyl	92-52-4	19	U	19	1
10727	4-Bromophenyl-phenylether	101-55-3	19	U	19	1
10727	Butylbenzylphthalate	85-68-7	77	U	77	1
10727	Di-n-butylphthalate	84-74-2	77	U	77	1
10727	Carbazole	86-74-8	19	U	19	1
10727	4-Chloro-3-methylphenol	59-50-7	19	U	19	1
10727	4-Chloroaniline	106-47-8	19	U	19	1
10727	bis(2-Chloroethoxy)methane	111-91-1	19	U	19	1
10727	bis(2-Chloroethyl)ether	111-44-4	19	U	19	1
10727	2-Chloronaphthalene	91-58-7	8	U	8	1
10727	2-Chlorophenol	95-57-8	19	U	19	1
10727	4-Chlorophenyl-phenylether	7005-72-3	19	U	19	1
10727	Chrysene	218-01-9	72		4	1
10727	Dibenz(a,h)anthracene	53-70-3	8	J	4	1
10727	Dibenzofuran	132-64-9	19	U	19	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	19	U	19	1
10727	Diethylphthalate	84-66-2	77	U	77	1
10727	2,4-Dimethylphenol	105-67-9	19	U	19	1
10727	Dimethylphthalate	131-11-3	77	U	77	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	190	U	190	1

Sample Description: S15-SS01-0305-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502125
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 11:45 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

151-2 SDG#: DHR11-09

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	380	U	380	1
10727	2,4-Dinitrotoluene	121-14-2	77	U	77	1
10727	2,6-Dinitrotoluene	606-20-2	19	U	19	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	77	U	77	1
10727	Fluoranthene	206-44-0	180		4	1
10727	Fluorene	86-73-7	18	J	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	190	U	190	1
10727	Hexachloroethane	67-72-1	38	U	38	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	45		4	1
10727	Isophorone	78-59-1	19	U	19	1
10727	2-Methylnaphthalene	91-57-6	30		4	1
10727	2-Methylphenol	95-48-7	19	U	19	1
10727	4-Methylphenol	106-44-5	19	U	19	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	19	U	19	1
10727	3-Nitroaniline	99-09-2	77	U	77	1
10727	4-Nitroaniline	100-01-6	77	U	77	1
10727	Nitrobenzene	98-95-3	19	U	19	1
10727	2-Nitrophenol	88-75-5	19	U	19	1
10727	4-Nitrophenol	100-02-7	190	U	190	1
10727	N-Nitroso-di-n-propylamine	621-64-7	19	U	19	1
10727	N-Nitrosodiphenylamine	86-30-6	19	U	19	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	77	U	77	1
10727	Pentachlorophenol	87-86-5	38	U	38	1
10727	Phenanthrene	85-01-8	140		4	1
10727	Phenol	108-95-2	19	U	19	1
10727	Pyrene	129-00-0	140		4	1
10727	2,4,5-Trichlorophenol	95-95-4	19	U	19	1
10727	2,4,6-Trichlorophenol	88-06-2	19	U	19	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	134		0.0202	1
06949	Cadmium	7440-43-9	0.578		0.0229	1
06951	Chromium	7440-47-3	15.4		0.161	1
06955	Lead	7439-92-1	61.3		0.252	1
06936	Selenium	7782-49-2	0.780	U	0.780	1
06966	Silver	7440-22-4	0.0952	U	0.0952	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	7.37		0.0909	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0438	J	0.0076	1

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Analysis Report

Sample Description: S15-SS01-0305-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502125
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 11:45 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

151-2 SDG#: DHR11-09

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	13.7	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113611AA	12/27/2011 19:15	Chelsea B Eastep	0.89
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201135026461	12/16/2011 13:16	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201135026461	12/16/2011 13:17	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201135026461	12/16/2011 13:16	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11354SLE026	12/28/2011 13:14	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	11354SLE026	12/21/2011 07:30	Katheryne V Sponheimer	1
06946	Barium	SW-846 6010B	2	120045708004	01/05/2012 07:01	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	113535708001	12/30/2011 13:16	Joanne M Gates	1
06951	Chromium	SW-846 6010B	1	113535708001	12/30/2011 13:16	Joanne M Gates	1
06955	Lead	SW-846 6010B	1	113535708001	12/30/2011 13:16	Joanne M Gates	1
06936	Selenium	SW-846 6010B	1	113535708001	01/04/2012 00:26	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	113535708001	12/30/2011 13:16	Joanne M Gates	1
06125	Arsenic	SW-846 6020	1	113531026002A	12/22/2011 13:10	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113535711001	12/20/2011 08:51	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113535708001	12/19/2011 11:22	James L Mertz	1
05708	SW SW846 ICP Digest	SW-846 3050B	2	120045708004	01/04/2012 20:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113531026002	12/19/2011 10:58	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113535711001	12/19/2011 12:28	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11354820003A	12/20/2011 10:56	William C Schwebel	1

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Analysis Report

Sample Description: S15-SS01-0810-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502126
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 11:50 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

151-3 SDG#: DHR11-10

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	67		9	1
10949	Benzene	71-43-2	0.6	U	0.6	1
10949	Bromobenzene	108-86-1	1	U	1	1
10949	Bromochloromethane	74-97-5	1	U	1	1
10949	Bromodichloromethane	75-27-4	1	U	1	1
10949	Bromoform	75-25-2	1	U	1	1
10949	Bromomethane	74-83-9	2	U	2	1
10949	2-Butanone	78-93-3	12	J	5	1
10949	n-Butylbenzene	104-51-8	1	J	1	1
10949	sec-Butylbenzene	135-98-8	46		1	1
10949	tert-Butylbenzene	98-06-6	1	U	1	1
10949	Carbon Disulfide	75-15-0	1	U	1	1
10949	Carbon Tetrachloride	56-23-5	1	U	1	1
10949	Chlorobenzene	108-90-7	1	U	1	1
10949	Chloroethane	75-00-3	2	U	2	1
10949	Chloroform	67-66-3	1	U	1	1
10949	Chloromethane	74-87-3	2	U	2	1
10949	2-Chlorotoluene	95-49-8	1	U	1	1
10949	4-Chlorotoluene	106-43-4	1	U	1	1
10949	Cyclohexane	110-82-7	1	U	1	1
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	1
10949	Dibromochloromethane	124-48-1	1	U	1	1
10949	1,2-Dibromoethane	106-93-4	1	U	1	1
10949	Dibromomethane	74-95-3	1	U	1	1
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	1
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	1
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	1
10949	Dichlorodifluoromethane	75-71-8	2	U	2	1
10949	1,1-Dichloroethane	75-34-3	1	U	1	1
10949	1,2-Dichloroethane	107-06-2	1	U	1	1
10949	1,1-Dichloroethene	75-35-4	1	U	1	1
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	1
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	1
10949	1,2-Dichloropropane	78-87-5	1	U	1	1
10949	1,3-Dichloropropane	142-28-9	1	U	1	1
10949	2,2-Dichloropropane	594-20-7	1	U	1	1
10949	1,1-Dichloropropene	563-58-6	1	U	1	1
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	1
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	1
10949	Ethylbenzene	100-41-4	2	J	1	1
10949	Freon 113	76-13-1	2	U	2	1
10949	Hexachlorobutadiene	87-68-3	2	U	2	1
10949	2-Hexanone	591-78-6	4	U	4	1
10949	Isopropylbenzene	98-82-8	31		1	1
10949	p-Isopropyltoluene	99-87-6	1	U	1	1
10949	Methyl Acetate	79-20-9	2	U	2	1
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.6	U	0.6	1
10949	4-Methyl-2-pentanone	108-10-1	4	U	4	1
10949	Methylcyclohexane	108-87-2	1	U	1	1
10949	Methylene Chloride	75-09-2	2	U	2	1
10949	Naphthalene	91-20-3	1	U	1	1

Sample Description: S15-SS01-0810-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502126
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 11:50 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

151-3 SDG#: DHR11-10

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	2	J	1	1
10949	Styrene	100-42-5	1	U	1	1
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	1
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	1
10949	Tetrachloroethene	127-18-4	1	U	1	1
10949	Toluene	108-88-3	1	U	1	1
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	1
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	1
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	1
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	1
10949	Trichloroethene	79-01-6	1	U	1	1
10949	Trichlorofluoromethane	75-69-4	2	U	2	1
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	1
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	1
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	1
10949	Vinyl Acetate	108-05-4	2	U	2	1
10949	Vinyl Chloride	75-01-4	1	U	1	1
10949	m+p-Xylene	179601-23-1	1	U	1	1
10949	o-Xylene	95-47-6	1	U	1	1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	5	J	4	1
10727	Benzo(a)anthracene	56-55-3	16	J	4	1
10727	Benzo(a)pyrene	50-32-8	19	J	4	1
10727	Benzo(b)fluoranthene	205-99-2	29		4	1
10727	Benzo(g,h,i)perylene	191-24-2	16	J	4	1
10727	Benzo(k)fluoranthene	207-08-9	12	J	4	1
10727	Benzyl alcohol	100-51-6	210	U	210	1
10727	1,1'-Biphenyl	92-52-4	21	U	21	1
10727	4-Bromophenyl-phenylether	101-55-3	21	U	21	1
10727	Butylbenzylphthalate	85-68-7	83	U	83	1
10727	Di-n-butylphthalate	84-74-2	83	U	83	1
10727	Carbazole	86-74-8	21	U	21	1
10727	4-Chloro-3-methylphenol	59-50-7	21	U	21	1
10727	4-Chloroaniline	106-47-8	21	U	21	1
10727	bis(2-Chloroethoxy)methane	111-91-1	21	U	21	1
10727	bis(2-Chloroethyl)ether	111-44-4	21	U	21	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	21	U	21	1
10727	4-Chlorophenyl-phenylether	7005-72-3	21	U	21	1
10727	Chrysene	218-01-9	20	J	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	21	U	21	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	21	U	21	1
10727	Diethylphthalate	84-66-2	83	U	83	1
10727	2,4-Dimethylphenol	105-67-9	21	U	21	1
10727	Dimethylphthalate	131-11-3	83	U	83	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	210	U	210	1

Sample Description: S15-SS01-0810-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502126
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 11:50 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

151-3 SDG#: DHR11-10

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	410	U	410	1
10727	2,4-Dinitrotoluene	121-14-2	83	U	83	1
10727	2,6-Dinitrotoluene	606-20-2	21	U	21	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	83	U	83	1
10727	Fluoranthene	206-44-0	54		4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	210	U	210	1
10727	Hexachloroethane	67-72-1	41	U	41	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	15	J	4	1
10727	Isophorone	78-59-1	21	U	21	1
10727	2-Methylnaphthalene	91-57-6	5	J	4	1
10727	2-Methylphenol	95-48-7	21	U	21	1
10727	4-Methylphenol	106-44-5	21	U	21	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	21	U	21	1
10727	3-Nitroaniline	99-09-2	83	U	83	1
10727	4-Nitroaniline	100-01-6	83	U	83	1
10727	Nitrobenzene	98-95-3	66		21	1
10727	2-Nitrophenol	88-75-5	21	U	21	1
10727	4-Nitrophenol	100-02-7	210	U	210	1
10727	N-Nitroso-di-n-propylamine	621-64-7	21	U	21	1
10727	N-Nitrosodiphenylamine	86-30-6	21	U	21	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	83	U	83	1
10727	Pentachlorophenol	87-86-5	41	U	41	1
10727	Phenanthrene	85-01-8	34		4	1
10727	Phenol	108-95-2	21	U	21	1
10727	Pyrene	129-00-0	41		4	1
10727	2,4,5-Trichlorophenol	95-95-4	21	U	21	1
10727	2,4,6-Trichlorophenol	88-06-2	21	U	21	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	137		0.0224	1
06949	Cadmium	7440-43-9	0.577	J	0.0244	1
06951	Chromium	7440-47-3	17.3		0.171	1
06955	Lead	7439-92-1	12.2		0.268	1
06936	Selenium	7782-49-2	0.828	U	0.828	1
06966	Silver	7440-22-4	0.101	U	0.101	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	6.69		0.0975	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0224	J	0.0083	1

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Analysis Report

Sample Description: S15-SS01-0810-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502126
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 11:50 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

151-3 SDG#: DHR11-10

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	20.3	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113611AA	12/27/2011 19:38	Chelsea B Eastep	1
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201135026461	12/16/2011 13:18	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201135026461	12/16/2011 13:18	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201135026461	12/16/2011 13:18	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11354SLE026	12/28/2011 13:38	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	11354SLE026	12/21/2011 07:30	Katheryne V Sponheimer	1
06946	Barium	SW-846 6010B	2	120045708004	01/05/2012 07:05	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	113535708001	12/30/2011 13:19	Joanne M Gates	1
06951	Chromium	SW-846 6010B	1	113535708001	12/30/2011 13:19	Joanne M Gates	1
06955	Lead	SW-846 6010B	1	113535708001	12/30/2011 13:19	Joanne M Gates	1
06936	Selenium	SW-846 6010B	1	113535708001	01/04/2012 00:30	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	113535708001	12/30/2011 13:19	Joanne M Gates	1
06125	Arsenic	SW-846 6020	1	113531026002A	12/22/2011 13:12	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113535711001	12/20/2011 08:58	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113535708001	12/19/2011 11:22	James L Mertz	1
05708	SW SW846 ICP Digest	SW-846 3050B	2	120045708004	01/04/2012 20:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113531026002	12/19/2011 10:58	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113535711001	12/19/2011 12:28	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11354820003A	12/20/2011 10:56	William C Schwebel	1

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Analysis Report

Sample Description: S15-SS02-0002-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502127
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 12:25 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

152-1 SDG#: DHR11-11

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	49		7	0.82
10949	Benzene	71-43-2	0.5	U	0.5	0.82
10949	Bromobenzene	108-86-1	0.9	U	0.9	0.82
10949	Bromochloromethane	74-97-5	0.9	U	0.9	0.82
10949	Bromodichloromethane	75-27-4	0.9	U	0.9	0.82
10949	Bromoform	75-25-2	0.9	U	0.9	0.82
10949	Bromomethane	74-83-9	2	U	2	0.82
10949	2-Butanone	78-93-3	6	J	4	0.82
10949	n-Butylbenzene	104-51-8	0.9	U	0.9	0.82
10949	sec-Butylbenzene	135-98-8	0.9	U	0.9	0.82
10949	tert-Butylbenzene	98-06-6	0.9	U	0.9	0.82
10949	Carbon Disulfide	75-15-0	0.9	U	0.9	0.82
10949	Carbon Tetrachloride	56-23-5	0.9	U	0.9	0.82
10949	Chlorobenzene	108-90-7	0.9	U	0.9	0.82
10949	Chloroethane	75-00-3	2	U	2	0.82
10949	Chloroform	67-66-3	0.9	U	0.9	0.82
10949	Chloromethane	74-87-3	2	U	2	0.82
10949	2-Chlorotoluene	95-49-8	0.9	U	0.9	0.82
10949	4-Chlorotoluene	106-43-4	0.9	U	0.9	0.82
10949	Cyclohexane	110-82-7	0.9	U	0.9	0.82
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.82
10949	Dibromochloromethane	124-48-1	0.9	U	0.9	0.82
10949	1,2-Dibromoethane	106-93-4	0.9	U	0.9	0.82
10949	Dibromomethane	74-95-3	0.9	U	0.9	0.82
10949	1,2-Dichlorobenzene	95-50-1	0.9	U	0.9	0.82
10949	1,3-Dichlorobenzene	541-73-1	0.9	U	0.9	0.82
10949	1,4-Dichlorobenzene	106-46-7	0.9	U	0.9	0.82
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.82
10949	1,1-Dichloroethane	75-34-3	0.9	U	0.9	0.82
10949	1,2-Dichloroethane	107-06-2	0.9	U	0.9	0.82
10949	1,1-Dichloroethene	75-35-4	0.9	U	0.9	0.82
10949	cis-1,2-Dichloroethene	156-59-2	0.9	U	0.9	0.82
10949	trans-1,2-Dichloroethene	156-60-5	0.9	U	0.9	0.82
10949	1,2-Dichloropropane	78-87-5	0.9	U	0.9	0.82
10949	1,3-Dichloropropane	142-28-9	0.9	U	0.9	0.82
10949	2,2-Dichloropropane	594-20-7	0.9	U	0.9	0.82
10949	1,1-Dichloropropene	563-58-6	0.9	U	0.9	0.82
10949	cis-1,3-Dichloropropene	10061-01-5	0.9	U	0.9	0.82
10949	trans-1,3-Dichloropropene	10061-02-6	0.9	U	0.9	0.82
10949	Ethylbenzene	100-41-4	0.9	U	0.9	0.82
10949	Freon 113	76-13-1	2	U	2	0.82
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.82
10949	2-Hexanone	591-78-6	3	U	3	0.82
10949	Isopropylbenzene	98-82-8	0.9	U	0.9	0.82
10949	p-Isopropyltoluene	99-87-6	0.9	U	0.9	0.82
10949	Methyl Acetate	79-20-9	2	U	2	0.82
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.82
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.82
10949	Methylcyclohexane	108-87-2	0.9	U	0.9	0.82
10949	Methylene Chloride	75-09-2	2	U	2	0.82
10949	Naphthalene	91-20-3	0.9	U	0.9	0.82

Sample Description: S15-SS02-0002-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502127
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 12:25 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

152-1 SDG#: DHR11-11

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	0.9	U	0.9	0.82
10949	Styrene	100-42-5	0.9	U	0.9	0.82
10949	1,1,1,2-Tetrachloroethane	630-20-6	0.9	U	0.9	0.82
10949	1,1,2,2-Tetrachloroethane	79-34-5	0.9	U	0.9	0.82
10949	Tetrachloroethene	127-18-4	0.9	U	0.9	0.82
10949	Toluene	108-88-3	0.9	U	0.9	0.82
10949	1,2,3-Trichlorobenzene	87-61-6	0.9	U	0.9	0.82
10949	1,2,4-Trichlorobenzene	120-82-1	0.9	U	0.9	0.82
10949	1,1,1-Trichloroethane	71-55-6	0.9	U	0.9	0.82
10949	1,1,2-Trichloroethane	79-00-5	0.9	U	0.9	0.82
10949	Trichloroethene	79-01-6	0.9	U	0.9	0.82
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.82
10949	1,2,3-Trichloropropane	96-18-4	0.9	U	0.9	0.82
10949	1,2,4-Trimethylbenzene	95-63-6	0.9	U	0.9	0.82
10949	1,3,5-Trimethylbenzene	108-67-8	0.9	U	0.9	0.82
10949	Vinyl Acetate	108-05-4	2	U	2	0.82
10949	Vinyl Chloride	75-01-4	0.9	U	0.9	0.82
10949	m+p-Xylene	179601-23-1	0.9	U	0.9	0.82
10949	o-Xylene	95-47-6	0.9	U	0.9	0.82
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	J	4	1
10727	Acenaphthylene	208-96-8	5	J	4	1
10727	Anthracene	120-12-7	10	J	4	1
10727	Benzo(a)anthracene	56-55-3	40		4	1
10727	Benzo(a)pyrene	50-32-8	41		4	1
10727	Benzo(b)fluoranthene	205-99-2	67		4	1
10727	Benzo(g,h,i)perylene	191-24-2	31		4	1
10727	Benzo(k)fluoranthene	207-08-9	24		4	1
10727	Benzyl alcohol	100-51-6	190	U	190	1
10727	1,1'-Biphenyl	92-52-4	19	U	19	1
10727	4-Bromophenyl-phenylether	101-55-3	19	U	19	1
10727	Butylbenzylphthalate	85-68-7	75	U	75	1
10727	Di-n-butylphthalate	84-74-2	75	U	75	1
10727	Carbazole	86-74-8	19	U	19	1
10727	4-Chloro-3-methylphenol	59-50-7	19	U	19	1
10727	4-Chloroaniline	106-47-8	19	U	19	1
10727	bis(2-Chloroethoxy)methane	111-91-1	19	U	19	1
10727	bis(2-Chloroethyl)ether	111-44-4	19	U	19	1
10727	2-Chloronaphthalene	91-58-7	8	U	8	1
10727	2-Chlorophenol	95-57-8	19	U	19	1
10727	4-Chlorophenyl-phenylether	7005-72-3	19	U	19	1
10727	Chrysene	218-01-9	43		4	1
10727	Dibenz(a,h)anthracene	53-70-3	5	J	4	1
10727	Dibenzofuran	132-64-9	19	U	19	1
10727	3,3'-Dichlorobenzidine	91-94-1	110	U	110	1
10727	2,4-Dichlorophenol	120-83-2	19	U	19	1
10727	Diethylphthalate	84-66-2	75	U	75	1
10727	2,4-Dimethylphenol	105-67-9	19	U	19	1
10727	Dimethylphthalate	131-11-3	75	U	75	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	190	U	190	1

Sample Description: S15-SS02-0002-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502127
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 12:25 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

152-1 SDG#: DHR11-11

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	380	U	380	1
10727	2,4-Dinitrotoluene	121-14-2	75	U	75	1
10727	2,6-Dinitrotoluene	606-20-2	19	U	19	1
10727	1,4-Dioxane	123-91-1	110	U	110	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	75	U	75	1
10727	Fluoranthene	206-44-0	97		4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	190	U	190	1
10727	Hexachloroethane	67-72-1	38	U	38	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	31		4	1
10727	Isophorone	78-59-1	19	U	19	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	19	U	19	1
10727	4-Methylphenol	106-44-5	19	U	19	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	19	U	19	1
10727	3-Nitroaniline	99-09-2	75	U	75	1
10727	4-Nitroaniline	100-01-6	75	U	75	1
10727	Nitrobenzene	98-95-3	19	U	19	1
10727	2-Nitrophenol	88-75-5	19	U	19	1
10727	4-Nitrophenol	100-02-7	190	U	190	1
10727	N-Nitroso-di-n-propylamine	621-64-7	19	U	19	1
10727	N-Nitrosodiphenylamine	86-30-6	19	U	19	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	75	U	75	1
10727	Pentachlorophenol	87-86-5	38	U	38	1
10727	Phenanthrene	85-01-8	49		4	1
10727	Phenol	108-95-2	19	U	19	1
10727	Pyrene	129-00-0	78		4	1
10727	2,4,5-Trichlorophenol	95-95-4	19	U	19	1
10727	2,4,6-Trichlorophenol	88-06-2	19	U	19	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	134		0.0200	1
06949	Cadmium	7440-43-9	0.409	J	0.0223	1
06951	Chromium	7440-47-3	22.9		0.156	1
06955	Lead	7439-92-1	14.3		0.245	1
06936	Selenium	7782-49-2	0.757	U	0.757	1
06966	Silver	7440-22-4	0.0924	U	0.0924	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	7.31		0.0891	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0245	J	0.0076	1

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Analysis Report

Sample Description: S15-SS02-0002-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502127
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 12:25 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

152-1 SDG#: DHR11-11

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	12.8	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113611AA	12/27/2011 20:01	Chelsea B Eastep	0.82
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201135026461	12/16/2011 13:20	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201135026461	12/16/2011 13:20	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201135026461	12/16/2011 13:20	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11354SLE026	12/28/2011 14:02	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	11354SLE026	12/21/2011 07:30	Katheryne V Sponheimer	1
06946	Barium	SW-846 6010B	2	120045708004	01/05/2012 07:09	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	113535708001	12/30/2011 13:23	Joanne M Gates	1
06951	Chromium	SW-846 6010B	1	113535708001	12/30/2011 13:23	Joanne M Gates	1
06955	Lead	SW-846 6010B	1	113535708001	12/30/2011 13:23	Joanne M Gates	1
06936	Selenium	SW-846 6010B	1	113535708001	01/04/2012 00:42	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	113535708001	12/30/2011 13:23	Joanne M Gates	1
06125	Arsenic	SW-846 6020	1	113531026002A	12/22/2011 13:13	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113535711001	12/20/2011 08:59	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113535708001	12/19/2011 11:22	James L Mertz	1
05708	SW SW846 ICP Digest	SW-846 3050B	2	120045708004	01/04/2012 20:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113531026002	12/19/2011 10:58	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113535711001	12/19/2011 12:28	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11354820003B	12/20/2011 10:56	William C Schwebel	1

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Analysis Report

Sample Description: S15-SS02-0305-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502128
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 12:30 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

152-2 SDG#: DHR11-12

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	120		7	0.8
10949	Benzene	71-43-2	0.5	U	0.5	0.8
10949	Bromobenzene	108-86-1	1	U	1	0.8
10949	Bromochloromethane	74-97-5	1	U	1	0.8
10949	Bromodichloromethane	75-27-4	1	U	1	0.8
10949	Bromoform	75-25-2	1	U	1	0.8
10949	Bromomethane	74-83-9	2	U	2	0.8
10949	2-Butanone	78-93-3	18		4	0.8
10949	n-Butylbenzene	104-51-8	1	U	1	0.8
10949	sec-Butylbenzene	135-98-8	1	U	1	0.8
10949	tert-Butylbenzene	98-06-6	1	U	1	0.8
10949	Carbon Disulfide	75-15-0	1	U	1	0.8
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.8
10949	Chlorobenzene	108-90-7	1	U	1	0.8
10949	Chloroethane	75-00-3	2	U	2	0.8
10949	Chloroform	67-66-3	1	U	1	0.8
10949	Chloromethane	74-87-3	2	U	2	0.8
10949	2-Chlorotoluene	95-49-8	1	U	1	0.8
10949	4-Chlorotoluene	106-43-4	1	U	1	0.8
10949	Cyclohexane	110-82-7	1	U	1	0.8
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.8
10949	Dibromochloromethane	124-48-1	1	U	1	0.8
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.8
10949	Dibromomethane	74-95-3	1	U	1	0.8
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.8
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.8
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.8
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.8
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.8
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.8
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.8
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.8
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.8
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.8
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.8
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.8
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.8
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.8
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.8
10949	Ethylbenzene	100-41-4	1	U	1	0.8
10949	Freon 113	76-13-1	2	U	2	0.8
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.8
10949	2-Hexanone	591-78-6	3	U	3	0.8
10949	Isopropylbenzene	98-82-8	1	U	1	0.8
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.8
10949	Methyl Acetate	79-20-9	2	U	2	0.8
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.8
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.8
10949	Methylcyclohexane	108-87-2	1	U	1	0.8
10949	Methylene Chloride	75-09-2	2	U	2	0.8
10949	Naphthalene	91-20-3	1	U	1	0.8

Sample Description: S15-SS02-0305-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502128
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 12:30 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

152-2 SDG#: DHR11-12

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.8
10949	Styrene	100-42-5	1	U	1	0.8
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.8
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.8
10949	Tetrachloroethene	127-18-4	1	U	1	0.8
10949	Toluene	108-88-3	1	U	1	0.8
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.8
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.8
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.8
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.8
10949	Trichloroethene	79-01-6	1	U	1	0.8
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.8
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.8
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.8
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.8
10949	Vinyl Acetate	108-05-4	2	U	2	0.8
10949	Vinyl Chloride	75-01-4	1	U	1	0.8
10949	m+p-Xylene	179601-23-1	1	U	1	0.8
10949	o-Xylene	95-47-6	1	U	1	0.8
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	J	4	1
10727	Anthracene	120-12-7	6	J	4	1
10727	Benzo(a)anthracene	56-55-3	21		4	1
10727	Benzo(a)pyrene	50-32-8	24		4	1
10727	Benzo(b)fluoranthene	205-99-2	32		4	1
10727	Benzo(g,h,i)perylene	191-24-2	20	J	4	1
10727	Benzo(k)fluoranthene	207-08-9	17	J	4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	20	U	20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	79	U	79	1
10727	Di-n-butylphthalate	84-74-2	79	U	79	1
10727	Carbazole	86-74-8	20	U	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	8	U	8	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	26		4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	20	U	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1
10727	Diethylphthalate	84-66-2	79	U	79	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	79	U	79	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1

Sample Description: S15-SS02-0305-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502128
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 12:30 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

152-2 SDG#: DHR11-12

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	390	U	390	1
10727	2,4-Dinitrotoluene	121-14-2	79	U	79	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	79	U	79	1
10727	Fluoranthene	206-44-0	62		4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	39	U	39	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	15	J	4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	4	J	4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	79	U	79	1
10727	4-Nitroaniline	100-01-6	79	U	79	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	79	U	79	1
10727	Pentachlorophenol	87-86-5	39	U	39	1
10727	Phenanthrene	85-01-8	36		4	1
10727	Phenol	108-95-2	20	U	20	1
10727	Pyrene	129-00-0	50		4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	128		0.0208	1
06949	Cadmium	7440-43-9	0.517	J	0.0238	1
06951	Chromium	7440-47-3	17.0		0.167	1
06955	Lead	7439-92-1	13.4		0.262	1
06936	Selenium	7782-49-2	0.810	U	0.810	1
06966	Silver	7440-22-4	0.0988	U	0.0988	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	7.66		0.0943	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0173	J	0.0082	1

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Analysis Report

Sample Description: S15-SS02-0305-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502128
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 12:30 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

152-2 SDG#: DHR11-12

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	16.0	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113611AA	12/27/2011 20:23	Chelsea B Eastep	0.8
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201135026461	12/16/2011 13:22	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201135026461	12/16/2011 13:22	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201135026461	12/16/2011 13:21	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11354SLE026	12/28/2011 14:27	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	11354SLE026	12/21/2011 07:30	Katheryne V Sponheimer	1
06946	Barium	SW-846 6010B	2	120045708004	01/05/2012 07:13	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	113535708001	12/30/2011 13:27	Joanne M Gates	1
06951	Chromium	SW-846 6010B	1	113535708001	12/30/2011 13:27	Joanne M Gates	1
06955	Lead	SW-846 6010B	1	113535708001	12/30/2011 13:27	Joanne M Gates	1
06936	Selenium	SW-846 6010B	1	113535708001	01/04/2012 00:46	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	113535708001	12/30/2011 13:27	Joanne M Gates	1
06125	Arsenic	SW-846 6020	1	113531026002A	12/22/2011 13:15	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113535711001	12/20/2011 09:01	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113535708001	12/19/2011 11:22	James L Mertz	1
05708	SW SW846 ICP Digest	SW-846 3050B	2	120045708004	01/04/2012 20:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113531026002	12/19/2011 10:58	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113535711001	12/19/2011 12:28	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11354820003B	12/20/2011 10:56	William C Schwebel	1

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Analysis Report

Sample Description: S15-SS02-0810-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502129
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 12:35 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

152-3 SDG#: DHR11-13

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	390	U	390	41.95
10949	Benzene	71-43-2	28	U	28	41.95
10949	Bromobenzene	108-86-1	55	U	55	41.95
10949	Bromochloromethane	74-97-5	55	U	55	41.95
10949	Bromodichloromethane	75-27-4	55	U	55	41.95
10949	Bromoform	75-25-2	55	U	55	41.95
10949	Bromomethane	74-83-9	110	U	110	41.95
10949	2-Butanone	78-93-3	220	U	220	41.95
10949	n-Butylbenzene	104-51-8	55	U	55	41.95
10949	sec-Butylbenzene	135-98-8	2,900		55	41.95
10949	tert-Butylbenzene	98-06-6	55	U	55	41.95
10949	Carbon Disulfide	75-15-0	55	U	55	41.95
10949	Carbon Tetrachloride	56-23-5	55	U	55	41.95
10949	Chlorobenzene	108-90-7	55	U	55	41.95
10949	Chloroethane	75-00-3	110	U	110	41.95
10949	Chloroform	67-66-3	55	U	55	41.95
10949	Chloromethane	74-87-3	110	U	110	41.95
10949	2-Chlorotoluene	95-49-8	55	U	55	41.95
10949	4-Chlorotoluene	106-43-4	55	U	55	41.95
10949	Cyclohexane	110-82-7	55	U	55	41.95
10949	1,2-Dibromo-3-chloropropane	96-12-8	110	U	110	41.95
10949	Dibromochloromethane	124-48-1	55	U	55	41.95
10949	1,2-Dibromoethane	106-93-4	55	U	55	41.95
10949	Dibromomethane	74-95-3	55	U	55	41.95
10949	1,2-Dichlorobenzene	95-50-1	55	U	55	41.95
10949	1,3-Dichlorobenzene	541-73-1	55	U	55	41.95
10949	1,4-Dichlorobenzene	106-46-7	55	U	55	41.95
10949	Dichlorodifluoromethane	75-71-8	110	U	110	41.95
10949	1,1-Dichloroethane	75-34-3	55	U	55	41.95
10949	1,2-Dichloroethane	107-06-2	55	U	55	41.95
10949	1,1-Dichloroethene	75-35-4	55	U	55	41.95
10949	cis-1,2-Dichloroethene	156-59-2	55	U	55	41.95
10949	trans-1,2-Dichloroethene	156-60-5	55	U	55	41.95
10949	1,2-Dichloropropane	78-87-5	55	U	55	41.95
10949	1,3-Dichloropropane	142-28-9	55	U	55	41.95
10949	2,2-Dichloropropane	594-20-7	55	U	55	41.95
10949	1,1-Dichloropropene	563-58-6	55	U	55	41.95
10949	cis-1,3-Dichloropropene	10061-01-5	55	U	55	41.95
10949	trans-1,3-Dichloropropene	10061-02-6	55	U	55	41.95
10949	Ethylbenzene	100-41-4	55	U	55	41.95
10949	Freon 113	76-13-1	110	U	110	41.95
10949	Hexachlorobutadiene	87-68-3	110	U	110	41.95
10949	2-Hexanone	591-78-6	170	U	170	41.95
10949	Isopropylbenzene	98-82-8	3,000		55	41.95
10949	p-Isopropyltoluene	99-87-6	55	U	55	41.95
10949	Methyl Acetate	79-20-9	160	J	110	41.95
10949	Methyl Tertiary Butyl Ether	1634-04-4	28	U	28	41.95
10949	4-Methyl-2-pentanone	108-10-1	170	U	170	41.95
10949	Methylcyclohexane	108-87-2	55	U	55	41.95
10949	Methylene Chloride	75-09-2	110	U	110	41.95
10949	Naphthalene	91-20-3	55	U	55	41.95

Sample Description: S15-SS02-0810-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502129
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 12:35 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

152-3 SDG#: DHR11-13

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	380		55	41.95
10949	Styrene	100-42-5	55	U	55	41.95
10949	1,1,1,2-Tetrachloroethane	630-20-6	55	U	55	41.95
10949	1,1,2,2-Tetrachloroethane	79-34-5	55	U	55	41.95
10949	Tetrachloroethene	127-18-4	55	U	55	41.95
10949	Toluene	108-88-3	55	U	55	41.95
10949	1,2,3-Trichlorobenzene	87-61-6	55	U	55	41.95
10949	1,2,4-Trichlorobenzene	120-82-1	55	U	55	41.95
10949	1,1,1-Trichloroethane	71-55-6	55	U	55	41.95
10949	1,1,2-Trichloroethane	79-00-5	55	U	55	41.95
10949	Trichloroethene	79-01-6	55	U	55	41.95
10949	Trichlorofluoromethane	75-69-4	110	U	110	41.95
10949	1,2,3-Trichloropropane	96-18-4	55	U	55	41.95
10949	1,2,4-Trimethylbenzene	95-63-6	55	U	55	41.95
10949	1,3,5-Trimethylbenzene	108-67-8	55	U	55	41.95
10949	Vinyl Acetate	108-05-4	110	U	110	41.95
10949	Vinyl Chloride	75-01-4	55	U	55	41.95
10949	m+p-Xylene	179601-23-1	55	U	55	41.95
10949	o-Xylene	95-47-6	55	U	55	41.95
Trial ID: RE						
10949	Acetone	67-64-1	390	U	390	41.95
10949	Benzene	71-43-2	28	U	28	41.95
10949	Bromobenzene	108-86-1	55	U	55	41.95
10949	Bromochloromethane	74-97-5	55	U	55	41.95
10949	Bromodichloromethane	75-27-4	55	U	55	41.95
10949	Bromoform	75-25-2	55	U	55	41.95
10949	Bromomethane	74-83-9	110	U	110	41.95
10949	2-Butanone	78-93-3	220	U	220	41.95
10949	n-Butylbenzene	104-51-8	55	U	55	41.95
10949	sec-Butylbenzene	135-98-8	2,900		55	41.95
10949	tert-Butylbenzene	98-06-6	55	U	55	41.95
10949	Carbon Disulfide	75-15-0	55	U	55	41.95
10949	Carbon Tetrachloride	56-23-5	55	U	55	41.95
10949	Chlorobenzene	108-90-7	55	U	55	41.95
10949	Chloroethane	75-00-3	110	U	110	41.95
10949	Chloroform	67-66-3	55	U	55	41.95
10949	Chloromethane	74-87-3	110	U	110	41.95
10949	2-Chlorotoluene	95-49-8	55	U	55	41.95
10949	4-Chlorotoluene	106-43-4	55	U	55	41.95
10949	Cyclohexane	110-82-7	55	U	55	41.95
10949	1,2-Dibromo-3-chloropropane	96-12-8	110	U	110	41.95
10949	Dibromochloromethane	124-48-1	55	U	55	41.95
10949	1,2-Dibromoethane	106-93-4	55	U	55	41.95
10949	Dibromomethane	74-95-3	55	U	55	41.95
10949	1,2-Dichlorobenzene	95-50-1	55	U	55	41.95
10949	1,3-Dichlorobenzene	541-73-1	55	U	55	41.95
10949	1,4-Dichlorobenzene	106-46-7	55	U	55	41.95
10949	Dichlorodifluoromethane	75-71-8	110	U	110	41.95
10949	1,1-Dichloroethane	75-34-3	55	U	55	41.95
10949	1,2-Dichloroethane	107-06-2	55	U	55	41.95

Sample Description: S15-SS02-0810-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502129
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 12:35 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

152-3 SDG#: DHR11-13

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	1,1-Dichloroethene	75-35-4	55	U	55	41.95
10949	cis-1,2-Dichloroethene	156-59-2	55	U	55	41.95
10949	trans-1,2-Dichloroethene	156-60-5	55	U	55	41.95
10949	1,2-Dichloropropane	78-87-5	55	U	55	41.95
10949	1,3-Dichloropropane	142-28-9	55	U	55	41.95
10949	2,2-Dichloropropane	594-20-7	55	U	55	41.95
10949	1,1-Dichloropropene	563-58-6	55	U	55	41.95
10949	cis-1,3-Dichloropropene	10061-01-5	55	U	55	41.95
10949	trans-1,3-Dichloropropene	10061-02-6	55	U	55	41.95
10949	Ethylbenzene	100-41-4	55	U	55	41.95
10949	Freon 113	76-13-1	110	U	110	41.95
10949	Hexachlorobutadiene	87-68-3	110	U	110	41.95
10949	2-Hexanone	591-78-6	170	U	170	41.95
10949	Isopropylbenzene	98-82-8	3,100		55	41.95
10949	p-Isopropyltoluene	99-87-6	55	U	55	41.95
10949	Methyl Acetate	79-20-9	130	J	110	41.95
10949	Methyl Tertiary Butyl Ether	1634-04-4	28	U	28	41.95
10949	4-Methyl-2-pentanone	108-10-1	170	U	170	41.95
10949	Methylcyclohexane	108-87-2	55	U	55	41.95
10949	Methylene Chloride	75-09-2	110	U	110	41.95
10949	Naphthalene	91-20-3	55	U	55	41.95
10949	n-Propylbenzene	103-65-1	380		55	41.95
10949	Styrene	100-42-5	55	U	55	41.95
10949	1,1,1,2-Tetrachloroethane	630-20-6	55	U	55	41.95
10949	1,1,2,2-Tetrachloroethane	79-34-5	55	U	55	41.95
10949	Tetrachloroethene	127-18-4	55	U	55	41.95
10949	Toluene	108-88-3	55	U	55	41.95
10949	1,2,3-Trichlorobenzene	87-61-6	55	U	55	41.95
10949	1,2,4-Trichlorobenzene	120-82-1	55	U	55	41.95
10949	1,1,1-Trichloroethane	71-55-6	55	U	55	41.95
10949	1,1,2-Trichloroethane	79-00-5	55	U	55	41.95
10949	Trichloroethene	79-01-6	55	U	55	41.95
10949	Trichlorofluoromethane	75-69-4	110	U	110	41.95
10949	1,2,3-Trichloropropane	96-18-4	55	U	55	41.95
10949	1,2,4-Trimethylbenzene	95-63-6	55	U	55	41.95
10949	1,3,5-Trimethylbenzene	108-67-8	55	U	55	41.95
10949	Vinyl Acetate	108-05-4	110	U	110	41.95
10949	Vinyl Chloride	75-01-4	55	U	55	41.95
10949	m+p-Xylene	179601-23-1	55	U	55	41.95
10949	o-Xylene	95-47-6	55	U	55	41.95

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 1,2,3-trichlorobenzene.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	5	J	4	1
10727	Acenaphthylene	208-96-8	10	J	4	1
10727	Anthracene	120-12-7	13	J	4	1
10727	Benzo(a)anthracene	56-55-3	51		4	1
10727	Benzo(a)pyrene	50-32-8	67		4	1

Sample Description: S15-SS02-0810-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502129
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 12:35 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

152-3 SDG#: DHR11-13

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C			**ug/kg**		**ug/kg**	
10727	Benzo(b)fluoranthene	205-99-2	110		4	1
10727	Benzo(g,h,i)perylene	191-24-2	54		4	1
10727	Benzo(k)fluoranthene	207-08-9	37		4	1
10727	Benzyl alcohol	100-51-6	220	U	220	1
10727	1,1'-Biphenyl	92-52-4	22	U	22	1
10727	4-Bromophenyl-phenylether	101-55-3	22	U	22	1
10727	Butylbenzylphthalate	85-68-7	87	U	87	1
10727	Di-n-butylphthalate	84-74-2	87	U	87	1
10727	Carbazole	86-74-8	22	U	22	1
10727	4-Chloro-3-methylphenol	59-50-7	22	U	22	1
10727	4-Chloroaniline	106-47-8	22	U	22	1
10727	bis(2-Chloroethoxy)methane	111-91-1	22	U	22	1
10727	bis(2-Chloroethyl)ether	111-44-4	22	U	22	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	22	U	22	1
10727	4-Chlorophenyl-phenylether	7005-72-3	22	U	22	1
10727	Chrysene	218-01-9	68		4	1
10727	Dibenz(a,h)anthracene	53-70-3	7	J	4	1
10727	Dibenzofuran	132-64-9	22	U	22	1
10727	3,3'-Dichlorobenzidine	91-94-1	130	U	130	1
10727	2,4-Dichlorophenol	120-83-2	22	U	22	1
10727	Diethylphthalate	84-66-2	87	U	87	1
10727	2,4-Dimethylphenol	105-67-9	22	U	22	1
10727	Dimethylphthalate	131-11-3	87	U	87	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	220	U	220	1
10727	2,4-Dinitrophenol	51-28-5	440	U	440	1
10727	2,4-Dinitrotoluene	121-14-2	87	U	87	1
10727	2,6-Dinitrotoluene	606-20-2	22	U	22	1
10727	1,4-Dioxane	123-91-1	130	U	130	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	87	U	87	1
10727	Fluoranthene	206-44-0	180		4	1
10727	Fluorene	86-73-7	10	J	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	220	U	220	1
10727	Hexachloroethane	67-72-1	44	U	44	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	44		4	1
10727	Isophorone	78-59-1	22	U	22	1
10727	2-Methylnaphthalene	91-57-6	6	J	4	1
10727	2-Methylphenol	95-48-7	22	U	22	1
10727	4-Methylphenol	106-44-5	22	U	22	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	22	U	22	1
10727	3-Nitroaniline	99-09-2	87	U	87	1
10727	4-Nitroaniline	100-01-6	87	U	87	1
10727	Nitrobenzene	98-95-3	22	U	22	1
10727	2-Nitrophenol	88-75-5	22	U	22	1
10727	4-Nitrophenol	100-02-7	220	U	220	1
10727	N-Nitroso-di-n-propylamine	621-64-7	22	U	22	1
10727	N-Nitrosodiphenylamine	86-30-6	22	U	22	1

Sample Description: S15-SS02-0810-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502129
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 12:35 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

152-3 SDG#: DHR11-13

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	87	U	87	1
10727	Pentachlorophenol	87-86-5	44	U	44	1
10727	Phenanthrene	85-01-8	100		4	1
10727	Phenol	108-95-2	22	U	22	1
10727	Pyrene	129-00-0	150		4	1
10727	2,4,5-Trichlorophenol	95-95-4	22	U	22	1
10727	2,4,6-Trichlorophenol	88-06-2	22	U	22	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	204		0.0233	1
06949	Cadmium	7440-43-9	0.481	J	0.0254	1
06951	Chromium	7440-47-3	24.9		0.178	1
06955	Lead	7439-92-1	20.5		0.279	1
06936	Selenium	7782-49-2	0.863	U	0.863	1
06966	Silver	7440-22-4	0.105	U	0.105	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	7.73		0.104	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0328	J	0.0093	1
Wet Chemistry	**SM20 2540 G**		**%**		**%**	
00111	Moisture	n.a.	24.2		0.50	1
	"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.					

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	R113631AA	12/29/2011 13:14	Kerri E Legerlotz	41.95
10949	8260 Ext. Soil Master	SW-846 8260B	2	R113631AA	12/29/2011 19:21	Kerri E Legerlotz	41.95
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201135026461	12/16/2011 13:24	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201135026461	12/16/2011 13:24	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201135026461	12/16/2011 13:23	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11354SLE026	12/28/2011 14:51	Linda M Hartenstine	1

Sample Description: S15-SS02-0810-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502129
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 12:35 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

152-3 SDG#: DHR11-13

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10809	BNA Soil Microwave	SW-846 3546	1	11354SLE026	12/21/2011 07:30	Katheryne V Sponheimer	1
06946	Barium	SW-846 6010B	2	120045708004	01/05/2012 07:17	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	113535708001	12/30/2011 13:31	Joanne M Gates	1
06951	Chromium	SW-846 6010B	1	113535708001	12/30/2011 13:31	Joanne M Gates	1
06955	Lead	SW-846 6010B	1	113535708001	12/30/2011 13:31	Joanne M Gates	1
06936	Selenium	SW-846 6010B	1	113535708001	01/04/2012 00:50	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	113535708001	12/30/2011 13:31	Joanne M Gates	1
06125	Arsenic	SW-846 6020	1	113531026002A	12/22/2011 13:16	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113535711001	12/20/2011 09:02	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113535708001	12/19/2011 11:22	James L Mertz	1
05708	SW SW846 ICP Digest	SW-846 3050B	2	120045708004	01/04/2012 20:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113531026002	12/19/2011 10:58	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113535711001	12/19/2011 12:28	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11354820003B	12/20/2011 10:56	William C Schwebel	1

Sample Description: S15-SS02-1315-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502130
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 12:55 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

152-4 SDG#: DHR11-14

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	40		7	0.84
10949	Benzene	71-43-2	0.5	U	0.5	0.84
10949	Bromobenzene	108-86-1	1	U	1	0.84
10949	Bromochloromethane	74-97-5	1	U	1	0.84
10949	Bromodichloromethane	75-27-4	1	U	1	0.84
10949	Bromoform	75-25-2	1	U	1	0.84
10949	Bromomethane	74-83-9	2	U	2	0.84
10949	2-Butanone	78-93-3	13		4	0.84
10949	n-Butylbenzene	104-51-8	2	J	1	0.84
10949	sec-Butylbenzene	135-98-8	90		1	0.84
10949	tert-Butylbenzene	98-06-6	1	U	1	0.84
10949	Carbon Disulfide	75-15-0	1	U	1	0.84
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.84
10949	Chlorobenzene	108-90-7	1	U	1	0.84
10949	Chloroethane	75-00-3	2	U	2	0.84
10949	Chloroform	67-66-3	1	U	1	0.84
10949	Chloromethane	74-87-3	2	U	2	0.84
10949	2-Chlorotoluene	95-49-8	1	U	1	0.84
10949	4-Chlorotoluene	106-43-4	1	U	1	0.84
10949	Cyclohexane	110-82-7	1	U	1	0.84
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.84
10949	Dibromochloromethane	124-48-1	1	U	1	0.84
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.84
10949	Dibromomethane	74-95-3	1	U	1	0.84
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.84
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.84
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.84
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.84
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.84
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.84
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.84
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.84
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.84
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.84
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.84
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.84
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.84
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.84
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.84
10949	Ethylbenzene	100-41-4	1	U	1	0.84
10949	Freon 113	76-13-1	2	U	2	0.84
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.84
10949	2-Hexanone	591-78-6	3	U	3	0.84
10949	Isopropylbenzene	98-82-8	140		1	0.84
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.84
10949	Methyl Acetate	79-20-9	11		2	0.84
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.84
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.84
10949	Methylcyclohexane	108-87-2	1	U	1	0.84
10949	Methylene Chloride	75-09-2	2	U	2	0.84
10949	Naphthalene	91-20-3	1	U	1	0.84

Sample Description: S15-SS02-1315-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502130
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 12:55 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

152-4 SDG#: DHR11-14

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	15		1	0.84
10949	Styrene	100-42-5	1	U	1	0.84
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.84
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.84
10949	Tetrachloroethene	127-18-4	1	U	1	0.84
10949	Toluene	108-88-3	1	U	1	0.84
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.84
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.84
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.84
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.84
10949	Trichloroethene	79-01-6	1	U	1	0.84
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.84
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.84
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.84
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.84
10949	Vinyl Acetate	108-05-4	2	U	2	0.84
10949	Vinyl Chloride	75-01-4	1	U	1	0.84
10949	m+p-Xylene	179601-23-1	1	U	1	0.84
10949	o-Xylene	95-47-6	1	U	1	0.84
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	20	U	20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	80	U	80	1
10727	Di-n-butylphthalate	84-74-2	80	U	80	1
10727	Carbazole	86-74-8	20	U	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	8	U	8	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	20	U	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1
10727	Diethylphthalate	84-66-2	80	U	80	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	80	U	80	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1

Sample Description: S15-SS02-1315-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502130
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 12:55 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

152-4 SDG#: DHR11-14

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	400	U	400	1
10727	2,4-Dinitrotoluene	121-14-2	80	U	80	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	80	U	80	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	40	U	40	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	80	U	80	1
10727	4-Nitroaniline	100-01-6	80	U	80	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	80	U	80	1
10727	Pentachlorophenol	87-86-5	40	U	40	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	20	U	20	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	168		0.0210	1
06949	Cadmium	7440-43-9	0.349	J	0.0238	1
06951	Chromium	7440-47-3	28.6		0.167	1
06955	Lead	7439-92-1	17.3		0.262	1
06936	Selenium	7782-49-2	0.810	U	0.810	1
06966	Silver	7440-22-4	0.0989	U	0.0989	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	4.02		0.0935	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0083	U	0.0083	1

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Analysis Report

Sample Description: S15-SS02-1315-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502130
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 12:55 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

152-4 SDG#: DHR11-14

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	16.9	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113611AA	12/27/2011 20:46	Chelsea B Eastep	0.84
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201135026461	12/16/2011 13:26	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201135026461	12/16/2011 13:26	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201135026461	12/16/2011 13:25	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11354SLE026	12/28/2011 15:15	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	11354SLE026	12/21/2011 07:30	Katheryne V Sponheimer	1
06946	Barium	SW-846 6010B	2	120045708004	01/05/2012 07:28	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	113535708001	12/30/2011 13:41	Joanne M Gates	1
06951	Chromium	SW-846 6010B	1	113535708001	12/30/2011 13:41	Joanne M Gates	1
06955	Lead	SW-846 6010B	1	113535708001	12/30/2011 13:41	Joanne M Gates	1
06936	Selenium	SW-846 6010B	1	113535708001	01/04/2012 00:54	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	113535708001	12/30/2011 13:41	Joanne M Gates	1
06125	Arsenic	SW-846 6020	1	113531026002A	12/22/2011 13:21	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113535711001	12/20/2011 09:03	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113535708001	12/19/2011 11:22	James L Mertz	1
05708	SW SW846 ICP Digest	SW-846 3050B	2	120045708004	01/04/2012 20:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113531026002	12/19/2011 10:58	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113535711001	12/19/2011 12:28	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11354820003B	12/20/2011 10:56	William C Schwebel	1

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Analysis Report

Sample Description: S15-SS02-2022-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502131
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 13:05 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

152-5 SDG#: DHR11-15

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg		ug/kg	
10949	Acetone	67-64-1	8	U	8	0.97
10949	Benzene	71-43-2	0.6	U	0.6	0.97
10949	Bromobenzene	108-86-1	1	U	1	0.97
10949	Bromochloromethane	74-97-5	1	U	1	0.97
10949	Bromodichloromethane	75-27-4	1	U	1	0.97
10949	Bromoform	75-25-2	1	U	1	0.97
10949	Bromomethane	74-83-9	2	U	2	0.97
10949	2-Butanone	78-93-3	5	U	5	0.97
10949	n-Butylbenzene	104-51-8	1	U	1	0.97
10949	sec-Butylbenzene	135-98-8	1	U	1	0.97
10949	tert-Butylbenzene	98-06-6	1	U	1	0.97
10949	Carbon Disulfide	75-15-0	1	U	1	0.97
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.97
10949	Chlorobenzene	108-90-7	1	U	1	0.97
10949	Chloroethane	75-00-3	2	U	2	0.97
10949	Chloroform	67-66-3	1	U	1	0.97
10949	Chloromethane	74-87-3	2	U	2	0.97
10949	2-Chlorotoluene	95-49-8	1	U	1	0.97
10949	4-Chlorotoluene	106-43-4	1	U	1	0.97
10949	Cyclohexane	110-82-7	1	U	1	0.97
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.97
10949	Dibromochloromethane	124-48-1	1	U	1	0.97
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.97
10949	Dibromomethane	74-95-3	1	U	1	0.97
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.97
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.97
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.97
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.97
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.97
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.97
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.97
10949	cis-1,2-Dichloroethene	156-59-2	2	J	1	0.97
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.97
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.97
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.97
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.97
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.97
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.97
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.97
10949	Ethylbenzene	100-41-4	1	U	1	0.97
10949	Freon 113	76-13-1	2	U	2	0.97
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.97
10949	2-Hexanone	591-78-6	4	U	4	0.97
10949	Isopropylbenzene	98-82-8	1	U	1	0.97
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.97
10949	Methyl Acetate	79-20-9	2	U	2	0.97
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.6	U	0.6	0.97
10949	4-Methyl-2-pentanone	108-10-1	4	U	4	0.97
10949	Methylcyclohexane	108-87-2	1	U	1	0.97
10949	Methylene Chloride	75-09-2	2	U	2	0.97
10949	Naphthalene	91-20-3	1	U	1	0.97

Sample Description: S15-SS02-2022-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502131
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 13:05 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

152-5 SDG#: DHR11-15

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.97
10949	Styrene	100-42-5	1	U	1	0.97
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.97
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.97
10949	Tetrachloroethene	127-18-4	1	U	1	0.97
10949	Toluene	108-88-3	1	U	1	0.97
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.97
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.97
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.97
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.97
10949	Trichloroethene	79-01-6	1	U	1	0.97
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.97
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.97
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.97
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.97
10949	Vinyl Acetate	108-05-4	2	U	2	0.97
10949	Vinyl Chloride	75-01-4	1	U	1	0.97
10949	m+p-Xylene	179601-23-1	1	U	1	0.97
10949	o-Xylene	95-47-6	1	U	1	0.97
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	210	U	210	1
10727	1,1'-Biphenyl	92-52-4	21	U	21	1
10727	4-Bromophenyl-phenylether	101-55-3	21	U	21	1
10727	Butylbenzylphthalate	85-68-7	82	U	82	1
10727	Di-n-butylphthalate	84-74-2	82	U	82	1
10727	Carbazole	86-74-8	21	U	21	1
10727	4-Chloro-3-methylphenol	59-50-7	21	U	21	1
10727	4-Chloroaniline	106-47-8	21	U	21	1
10727	bis(2-Chloroethoxy)methane	111-91-1	21	U	21	1
10727	bis(2-Chloroethyl)ether	111-44-4	21	U	21	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	21	U	21	1
10727	4-Chlorophenyl-phenylether	7005-72-3	21	U	21	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	21	U	21	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	21	U	21	1
10727	Diethylphthalate	84-66-2	82	U	82	1
10727	2,4-Dimethylphenol	105-67-9	21	U	21	1
10727	Dimethylphthalate	131-11-3	82	U	82	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	210	U	210	1

Sample Description: S15-SS02-2022-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502131
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 13:05 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

152-5 SDG#: DHR11-15

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	410	U	410	1
10727	2,4-Dinitrotoluene	121-14-2	82	U	82	1
10727	2,6-Dinitrotoluene	606-20-2	21	U	21	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	82	U	82	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	210	U	210	1
10727	Hexachloroethane	67-72-1	41	U	41	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	21	U	21	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	21	U	21	1
10727	4-Methylphenol	106-44-5	21	U	21	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	21	U	21	1
10727	3-Nitroaniline	99-09-2	82	U	82	1
10727	4-Nitroaniline	100-01-6	82	U	82	1
10727	Nitrobenzene	98-95-3	21	U	21	1
10727	2-Nitrophenol	88-75-5	21	U	21	1
10727	4-Nitrophenol	100-02-7	210	U	210	1
10727	N-Nitroso-di-n-propylamine	621-64-7	21	U	21	1
10727	N-Nitrosodiphenylamine	86-30-6	21	U	21	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	82	U	82	1
10727	Pentachlorophenol	87-86-5	41	U	41	1
10727	Phenanthrene	85-01-8	5	J	4	1
10727	Phenol	108-95-2	21	U	21	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	21	U	21	1
10727	2,4,6-Trichlorophenol	88-06-2	21	U	21	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	113		0.0222	1
06949	Cadmium	7440-43-9	0.631		0.0238	1
06951	Chromium	7440-47-3	22.3		0.166	1
06955	Lead	7439-92-1	15.0		0.261	1
06936	Selenium	7782-49-2	0.808	U	0.808	1
06966	Silver	7440-22-4	0.0986	U	0.0986	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	6.00		0.0978	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0174	J	0.0084	1

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Analysis Report

Sample Description: S15-SS02-2022-121511 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502131
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 13:05 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

152-5 SDG#: DHR11-15

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	19.8	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113622AA	12/29/2011 00:59	Kelly E Keller	0.97
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201135026461	12/16/2011 13:27	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201135026461	12/16/2011 13:28	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201135026461	12/16/2011 13:27	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11354SLE026	12/28/2011 15:39	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	11354SLE026	12/21/2011 07:30	Katheryne V Sponheimer	1
06946	Barium	SW-846 6010B	2	120045708004	01/05/2012 07:32	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	113535708001	12/30/2011 13:45	Joanne M Gates	1
06951	Chromium	SW-846 6010B	1	113535708001	12/30/2011 13:45	Joanne M Gates	1
06955	Lead	SW-846 6010B	1	113535708001	12/30/2011 13:45	Joanne M Gates	1
06936	Selenium	SW-846 6010B	1	113535708001	01/04/2012 00:57	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	113535708001	12/30/2011 13:45	Joanne M Gates	1
06125	Arsenic	SW-846 6020	1	113531026002A	12/22/2011 13:23	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113535711001	12/20/2011 09:07	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113535708001	12/19/2011 11:22	James L Mertz	1
05708	SW SW846 ICP Digest	SW-846 3050B	2	120045708004	01/04/2012 20:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113531026002	12/19/2011 10:58	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113535711001	12/19/2011 12:28	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11354820003B	12/20/2011 10:56	William C Schwebel	1

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Analysis Report

Sample Description: HGR-121511-EB01 Grab Water Sample
Dow Hanging Rock, OH

LLI Sample # WW 6502132
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 14:25 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

152EB SDG#: DHR11-16EB

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**		**ug/l**	
04678	Acenaphthene	83-32-9	0.1	U	0.1	1
04678	Acenaphthylene	208-96-8	0.1	U	0.1	1
04678	Anthracene	120-12-7	0.1	U	0.1	1
04678	Benzo(a)anthracene	56-55-3	0.1	U	0.1	1
04678	Benzo(a)pyrene	50-32-8	0.1	U	0.1	1
04678	Benzo(b)fluoranthene	205-99-2	0.1	U	0.1	1
04678	Benzo(g,h,i)perylene	191-24-2	0.1	U	0.1	1
04678	Benzo(k)fluoranthene	207-08-9	0.1	U	0.1	1
04678	Benzyl alcohol	100-51-6	5	U	5	1
04678	1,1'-Biphenyl	92-52-4	0.5	U	0.5	1
04678	4-Bromophenyl-phenylether	101-55-3	0.5	U	0.5	1
04678	Butylbenzylphthalate	85-68-7	2	U	2	1
04678	Di-n-butylphthalate	84-74-2	2	U	2	1
04678	Carbazole	86-74-8	0.5	U	0.5	1
04678	4-Chloro-3-methylphenol	59-50-7	0.5	U	0.5	1
04678	4-Chloroaniline	106-47-8	0.5	U	0.5	1
04678	bis(2-Chloroethoxy)methane	111-91-1	0.5	U	0.5	1
04678	bis(2-Chloroethyl)ether	111-44-4	0.5	U	0.5	1
04678	2-Chloronaphthalene	91-58-7	0.4	U	0.4	1
04678	2-Chlorophenol	95-57-8	0.5	U	0.5	1
04678	4-Chlorophenyl-phenylether	7005-72-3	0.5	U	0.5	1
04678	Chrysene	218-01-9	0.1	U	0.1	1
04678	Dibenz(a,h)anthracene	53-70-3	0.1	U	0.1	1
04678	Dibenzofuran	132-64-9	0.5	U	0.5	1
04678	3,3'-Dichlorobenzidine	91-94-1	2	U	2	1
04678	2,4-Dichlorophenol	120-83-2	0.5	U	0.5	1
04678	Diethylphthalate	84-66-2	2	U	2	1
04678	2,4-Dimethylphenol	105-67-9	0.5	U	0.5	1
04678	Dimethylphthalate	131-11-3	2	U	2	1
04678	4,6-Dinitro-2-methylphenol	534-52-1	5	U	5	1
04678	2,4-Dinitrophenol	51-28-5	10	U	10	1
04678	2,4-Dinitrotoluene	121-14-2	1	U	1	1
04678	2,6-Dinitrotoluene	606-20-2	0.5	U	0.5	1
04678	1,4-Dioxane	123-91-1	1	U	1	1
04678	bis(2-Ethylhexyl)phthalate	117-81-7	2	U	2	1
04678	Fluoranthene	206-44-0	0.1	U	0.1	1
04678	Fluorene	86-73-7	0.1	U	0.1	1
04678	Hexachlorobenzene	118-74-1	0.1	U	0.1	1
04678	Hexachlorocyclopentadiene	77-47-4	5	U	5	1
04678	Hexachloroethane	67-72-1	1	U	1	1
04678	Indeno(1,2,3-cd)pyrene	193-39-5	0.1	U	0.1	1
04678	Isophorone	78-59-1	0.5	U	0.5	1
04678	2-Methylnaphthalene	91-57-6	0.1	U	0.1	1
04678	2-Methylphenol	95-48-7	0.5	U	0.5	1
04678	4-Methylphenol	106-44-5	0.5	U	0.5	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
04678	2-Nitroaniline	88-74-4	0.5	U	0.5	1
04678	3-Nitroaniline	99-09-2	0.5	U	0.5	1
04678	4-Nitroaniline	100-01-6	0.5	U	0.5	1

Sample Description: HGR-121511-EB01 Grab Water Sample
Dow Hanging Rock, OH

LLI Sample # WW 6502132
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 14:25 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

152EB SDG#: DHR11-16EB

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**		**ug/l**	
04678	Nitrobenzene	98-95-3	0.5	U	0.5	1
04678	2-Nitrophenol	88-75-5	0.5	U	0.5	1
04678	4-Nitrophenol	100-02-7	10	U	10	1
04678	N-Nitroso-di-n-propylamine	621-64-7	0.5	U	0.5	1
04678	N-Nitrosodiphenylamine	86-30-6	0.5	U	0.5	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
04678	Di-n-octylphthalate	117-84-0	2	U	2	1
04678	Pentachlorophenol	87-86-5	1	U	1	1
04678	Phenanthrene	85-01-8	0.1	U	0.1	1
04678	Phenol	108-95-2	0.5	U	0.5	1
04678	Pyrene	129-00-0	0.1	U	0.1	1
04678	2,4,5-Trichlorophenol	95-95-4	0.5	U	0.5	1
04678	2,4,6-Trichlorophenol	88-06-2	0.5	U	0.5	1
Metals	**SW-846 6010B**		**mg/l**		**mg/l**	
07046	Barium	7440-39-3	0.00026	U	0.00026	1
07049	Cadmium	7440-43-9	0.00027	U	0.00027	1
07051	Chromium	7440-47-3	0.0011	U	0.0011	1
07055	Lead	7439-92-1	0.0022	U	0.0022	1
07036	Selenium	7782-49-2	0.0069	U	0.0069	1
07066	Silver	7440-22-4	0.0011	J	0.00091	1
	SW-846 6020		**mg/l**		**mg/l**	
06025	Arsenic	7440-38-2	0.00095	U	0.00095	1
	SW-846 7470A		**mg/l**		**mg/l**	
00259	Mercury	7439-97-6	0.000026	U	0.000026	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	11354WAB026	12/21/2011 14:42	Linda M Hartenstine	1
00813	BNA Water Extraction	SW-846 3510C	1	11354WAB026	12/20/2011 19:00	Nicholas W Shroyer	1
07046	Barium	SW-846 6010B	1	113575705002	12/29/2011 02:46	Tara L Snyder	1
07049	Cadmium	SW-846 6010B	1	113575705002	12/29/2011 02:46	Tara L Snyder	1
07051	Chromium	SW-846 6010B	1	113575705002	12/29/2011 02:46	Tara L Snyder	1
07055	Lead	SW-846 6010B	1	113575705002	12/29/2011 02:46	Tara L Snyder	1
07036	Selenium	SW-846 6010B	1	113575705002	12/29/2011 02:46	Tara L Snyder	1
07066	Silver	SW-846 6010B	1	113575705002	12/29/2011 02:46	Tara L Snyder	1

Sample Description: HGR-121511-EB01 Grab Water Sample
Dow Hanging Rock, OH

LLI Sample # WW 6502132
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 14:25 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

152EB SDG#: DHR11-16EB

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	SW-846 6020	1	113546050004A	12/27/2011 18:34	David K Beck	1
00259	Mercury	SW-846 7470A	1	113565713002	12/30/2011 01:05	Parker D Lindstrom	1
05705	WW/TL SW 846 ICP Digest (tot)	SW-846 3010A	1	113575705002	12/27/2011 09:43	James L Mertz	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	113546050004	12/21/2011 08:00	Denise K Conners	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	113565713002	12/22/2011 15:52	Nelli S Markaryan	1

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Analysis Report

Sample Description: HGR-121511-FD01 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502133
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRD01 SDG#: DHR11-17FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	15	J	7	0.92
10949	Benzene	71-43-2	0.5	U	0.5	0.92
10949	Bromobenzene	108-86-1	1	U	1	0.92
10949	Bromochloromethane	74-97-5	1	U	1	0.92
10949	Bromodichloromethane	75-27-4	1	U	1	0.92
10949	Bromoform	75-25-2	1	U	1	0.92
10949	Bromomethane	74-83-9	2	U	2	0.92
10949	2-Butanone	78-93-3	4	U	4	0.92
10949	n-Butylbenzene	104-51-8	1	U	1	0.92
10949	sec-Butylbenzene	135-98-8	1	U	1	0.92
10949	tert-Butylbenzene	98-06-6	1	U	1	0.92
10949	Carbon Disulfide	75-15-0	9		1	0.92
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.92
10949	Chlorobenzene	108-90-7	1	U	1	0.92
10949	Chloroethane	75-00-3	2	U	2	0.92
10949	Chloroform	67-66-3	1	U	1	0.92
10949	Chloromethane	74-87-3	2	U	2	0.92
10949	2-Chlorotoluene	95-49-8	1	U	1	0.92
10949	4-Chlorotoluene	106-43-4	1	U	1	0.92
10949	Cyclohexane	110-82-7	1	U	1	0.92
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.92
10949	Dibromochloromethane	124-48-1	1	U	1	0.92
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.92
10949	Dibromomethane	74-95-3	1	U	1	0.92
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.92
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.92
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.92
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.92
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.92
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.92
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.92
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.92
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.92
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.92
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.92
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.92
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.92
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.92
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.92
10949	Ethylbenzene	100-41-4	1	U	1	0.92
10949	Freon 113	76-13-1	2	U	2	0.92
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.92
10949	2-Hexanone	591-78-6	3	U	3	0.92
10949	Isopropylbenzene	98-82-8	1	U	1	0.92
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.92
10949	Methyl Acetate	79-20-9	2	U	2	0.92
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.92
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.92
10949	Methylcyclohexane	108-87-2	1	U	1	0.92
10949	Methylene Chloride	75-09-2	2	U	2	0.92
10949	Naphthalene	91-20-3	1	U	1	0.92

Sample Description: HGR-121511-FD01 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502133
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRD01 SDG#: DHR11-17FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.92
10949	Styrene	100-42-5	1	U	1	0.92
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.92
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.92
10949	Tetrachloroethene	127-18-4	1	U	1	0.92
10949	Toluene	108-88-3	1	U	1	0.92
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.92
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.92
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.92
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.92
10949	Trichloroethene	79-01-6	1	U	1	0.92
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.92
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.92
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.92
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.92
10949	Vinyl Acetate	108-05-4	2	U	2	0.92
10949	Vinyl Chloride	75-01-4	1	U	1	0.92
10949	m+p-Xylene	179601-23-1	1	U	1	0.92
10949	o-Xylene	95-47-6	1	U	1	0.92
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	35		4	1
10727	Acenaphthylene	208-96-8	13	J	4	1
10727	Anthracene	120-12-7	70		4	1
10727	Benzo(a)anthracene	56-55-3	180		4	1
10727	Benzo(a)pyrene	50-32-8	180		4	1
10727	Benzo(b)fluoranthene	205-99-2	250		4	1
10727	Benzo(g,h,i)perylene	191-24-2	120		4	1
10727	Benzo(k)fluoranthene	207-08-9	100		4	1
10727	Benzyl alcohol	100-51-6	190	U	190	1
10727	1,1'-Biphenyl	92-52-4	66		19	1
10727	4-Bromophenyl-phenylether	101-55-3	19	U	19	1
10727	Butylbenzylphthalate	85-68-7	75	U	75	1
10727	Di-n-butylphthalate	84-74-2	75	U	75	1
10727	Carbazole	86-74-8	26	J	19	1
10727	4-Chloro-3-methylphenol	59-50-7	19	U	19	1
10727	4-Chloroaniline	106-47-8	19	U	19	1
10727	bis(2-Chloroethoxy)methane	111-91-1	19	U	19	1
10727	bis(2-Chloroethyl)ether	111-44-4	19	U	19	1
10727	2-Chloronaphthalene	91-58-7	8	U	8	1
10727	2-Chlorophenol	95-57-8	19	U	19	1
10727	4-Chlorophenyl-phenylether	7005-72-3	19	U	19	1
10727	Chrysene	218-01-9	190		4	1
10727	Dibenz(a,h)anthracene	53-70-3	21		4	1
10727	Dibenzofuran	132-64-9	44		19	1
10727	3,3'-Dichlorobenzidine	91-94-1	110	U	110	1
10727	2,4-Dichlorophenol	120-83-2	19	U	19	1
10727	Diethylphthalate	84-66-2	75	U	75	1
10727	2,4-Dimethylphenol	105-67-9	19	U	19	1
10727	Dimethylphthalate	131-11-3	75	U	75	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	190	U	190	1

Sample Description: HGR-121511-FD01 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502133
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRD01 SDG#: DHR11-17FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	380	U	380	1
10727	2,4-Dinitrotoluene	121-14-2	75	U	75	1
10727	2,6-Dinitrotoluene	606-20-2	19	U	19	1
10727	1,4-Dioxane	123-91-1	110	U	110	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	75	U	75	1
10727	Fluoranthene	206-44-0	430		4	1
10727	Fluorene	86-73-7	29		4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	190	U	190	1
10727	Hexachloroethane	67-72-1	38	U	38	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	110		4	1
10727	Isophorone	78-59-1	19	U	19	1
10727	2-Methylnaphthalene	91-57-6	72		4	1
10727	2-Methylphenol	95-48-7	19	U	19	1
10727	4-Methylphenol	106-44-5	19	U	19	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	19	U	19	1
10727	3-Nitroaniline	99-09-2	75	U	75	1
10727	4-Nitroaniline	100-01-6	75	U	75	1
10727	Nitrobenzene	98-95-3	19	U	19	1
10727	2-Nitrophenol	88-75-5	19	U	19	1
10727	4-Nitrophenol	100-02-7	190	U	190	1
10727	N-Nitroso-di-n-propylamine	621-64-7	19	U	19	1
10727	N-Nitrosodiphenylamine	86-30-6	19	U	19	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	75	U	75	1
10727	Pentachlorophenol	87-86-5	38	U	38	1
10727	Phenanthrene	85-01-8	300		4	1
10727	Phenol	108-95-2	19	U	19	1
10727	Pyrene	129-00-0	320		4	1
10727	2,4,5-Trichlorophenol	95-95-4	19	U	19	1
10727	2,4,6-Trichlorophenol	88-06-2	19	U	19	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	194		0.0200	1
06949	Cadmium	7440-43-9	0.608		0.0220	1
06951	Chromium	7440-47-3	30.5		0.154	1
06955	Lead	7439-92-1	10.1		0.242	1
06936	Selenium	7782-49-2	3.00		0.749	1
06966	Silver	7440-22-4	0.0914	U	0.0914	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	6.43		0.0881	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0181	J	0.0079	1

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Analysis Report

Sample Description: HGR-121511-FD01 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502133
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRD01 SDG#: DHR11-17FD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	11.8	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113622AA	12/29/2011 01:22	Kelly E Keller	0.92
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201135026461	12/16/2011 13:29	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201135026461	12/16/2011 13:30	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201135026461	12/16/2011 13:29	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11354SLE026	12/28/2011 16:03	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	11354SLE026	12/21/2011 07:30	Katheryne V Sponheimer	1
06946	Barium	SW-846 6010B	2	120045708004	01/05/2012 07:36	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	113535708001	12/30/2011 13:48	Joanne M Gates	1
06951	Chromium	SW-846 6010B	1	113535708001	12/30/2011 13:48	Joanne M Gates	1
06955	Lead	SW-846 6010B	1	113535708001	12/30/2011 13:48	Joanne M Gates	1
06936	Selenium	SW-846 6010B	1	113535708001	01/04/2012 01:01	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	113535708001	12/30/2011 13:48	Joanne M Gates	1
06125	Arsenic	SW-846 6020	1	113531026002A	12/22/2011 13:24	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113535711001	12/20/2011 09:09	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113535708001	12/19/2011 11:22	James L Mertz	1
05708	SW SW846 ICP Digest	SW-846 3050B	2	120045708004	01/04/2012 20:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113531026002	12/19/2011 10:58	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113535711001	12/19/2011 12:28	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11354820003B	12/20/2011 10:56	William C Schwebel	1

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Analysis Report

Sample Description: HGR-121511-FD02 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502134
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRD02 SDG#: DHR11-18FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	31		8	0.91
10949	Benzene	71-43-2	0.5	U	0.5	0.91
10949	Bromobenzene	108-86-1	1	U	1	0.91
10949	Bromochloromethane	74-97-5	1	U	1	0.91
10949	Bromodichloromethane	75-27-4	1	U	1	0.91
10949	Bromoform	75-25-2	1	U	1	0.91
10949	Bromomethane	74-83-9	2	U	2	0.91
10949	2-Butanone	78-93-3	4	U	4	0.91
10949	n-Butylbenzene	104-51-8	1	U	1	0.91
10949	sec-Butylbenzene	135-98-8	1	U	1	0.91
10949	tert-Butylbenzene	98-06-6	1	U	1	0.91
10949	Carbon Disulfide	75-15-0	1	U	1	0.91
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.91
10949	Chlorobenzene	108-90-7	1	U	1	0.91
10949	Chloroethane	75-00-3	2	U	2	0.91
10949	Chloroform	67-66-3	1	U	1	0.91
10949	Chloromethane	74-87-3	2	U	2	0.91
10949	2-Chlorotoluene	95-49-8	1	U	1	0.91
10949	4-Chlorotoluene	106-43-4	1	U	1	0.91
10949	Cyclohexane	110-82-7	1	U	1	0.91
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.91
10949	Dibromochloromethane	124-48-1	1	U	1	0.91
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.91
10949	Dibromomethane	74-95-3	1	U	1	0.91
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.91
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.91
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.91
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.91
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.91
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.91
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.91
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.91
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.91
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.91
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.91
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.91
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.91
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.91
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.91
10949	Ethylbenzene	100-41-4	1	U	1	0.91
10949	Freon 113	76-13-1	2	U	2	0.91
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.91
10949	2-Hexanone	591-78-6	3	U	3	0.91
10949	Isopropylbenzene	98-82-8	1	U	1	0.91
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.91
10949	Methyl Acetate	79-20-9	2	U	2	0.91
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.91
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.91
10949	Methylcyclohexane	108-87-2	1	U	1	0.91
10949	Methylene Chloride	75-09-2	2	U	2	0.91
10949	Naphthalene	91-20-3	1	U	1	0.91

Sample Description: HGR-121511-FD02 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502134
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRD02 SDG#: DHR11-18FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.91
10949	Styrene	100-42-5	1	U	1	0.91
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.91
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.91
10949	Tetrachloroethene	127-18-4	1	U	1	0.91
10949	Toluene	108-88-3	1	U	1	0.91
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.91
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.91
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.91
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.91
10949	Trichloroethene	79-01-6	1	U	1	0.91
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.91
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.91
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.91
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.91
10949	Vinyl Acetate	108-05-4	2	U	2	0.91
10949	Vinyl Chloride	75-01-4	1	U	1	0.91
10949	m+p-Xylene	179601-23-1	1	U	1	0.91
10949	o-Xylene	95-47-6	1	U	1	0.91
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	21		4	1
10727	Acenaphthylene	208-96-8	16	J	4	1
10727	Anthracene	120-12-7	65		4	1
10727	Benzo(a)anthracene	56-55-3	150		4	1
10727	Benzo(a)pyrene	50-32-8	160		4	1
10727	Benzo(b)fluoranthene	205-99-2	210		4	1
10727	Benzo(g,h,i)perylene	191-24-2	110		4	1
10727	Benzo(k)fluoranthene	207-08-9	85		4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	20	U	20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	79	U	79	1
10727	Di-n-butylphthalate	84-74-2	79	U	79	1
10727	Carbazole	86-74-8	30	J	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	8	U	8	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	150		4	1
10727	Dibenz(a,h)anthracene	53-70-3	16	J	4	1
10727	Dibenzofuran	132-64-9	27	J	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1
10727	Diethylphthalate	84-66-2	79	U	79	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	79	U	79	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1

Sample Description: HGR-121511-FD02 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502134
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRD02 SDG#: DHR11-18FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	400	U	400	1
10727	2,4-Dinitrotoluene	121-14-2	79	U	79	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	79	U	79	1
10727	Fluoranthene	206-44-0	460		4	1
10727	Fluorene	86-73-7	38		4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	40	U	40	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	98		4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	6	J	4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	79	U	79	1
10727	4-Nitroaniline	100-01-6	79	U	79	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	79	U	79	1
10727	Pentachlorophenol	87-86-5	40	U	40	1
10727	Phenanthrene	85-01-8	270		4	1
10727	Phenol	108-95-2	20	U	20	1
10727	Pyrene	129-00-0	370		4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	81.9		0.0211	1
06949	Cadmium	7440-43-9	0.585		0.0232	1
06951	Chromium	7440-47-3	18.6		0.163	1
06955	Lead	7439-92-1	18.1		0.255	1
06936	Selenium	7782-49-2	0.790	U	0.790	1
06966	Silver	7440-22-4	0.0964	U	0.0964	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	11.3		0.0920	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0289	J	0.0083	1

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Analysis Report

Sample Description: HGR-121511-FD02 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502134
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRD02 SDG#: DHR11-18FD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	17.2	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113622AA	12/29/2011 01:44	Kelly E Keller	0.91
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201135026461	12/16/2011 13:31	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201135026461	12/16/2011 13:32	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201135026461	12/16/2011 13:31	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11354SLE026	12/28/2011 16:28	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	11354SLE026	12/21/2011 07:30	Katheryne V Sponheimer	1
06946	Barium	SW-846 6010B	2	120045708004	01/05/2012 07:40	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	113535708001	12/30/2011 13:52	Joanne M Gates	1
06951	Chromium	SW-846 6010B	1	113535708001	12/30/2011 13:52	Joanne M Gates	1
06955	Lead	SW-846 6010B	1	113535708001	12/30/2011 13:52	Joanne M Gates	1
06936	Selenium	SW-846 6010B	1	113535708001	01/04/2012 01:05	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	113535708001	12/30/2011 13:52	Joanne M Gates	1
06125	Arsenic	SW-846 6020	1	113531026002A	12/22/2011 13:26	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113535711001	12/20/2011 09:10	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113535708001	12/19/2011 11:22	James L Mertz	1
05708	SW SW846 ICP Digest	SW-846 3050B	2	120045708004	01/04/2012 20:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113531026002	12/19/2011 10:58	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113535711001	12/19/2011 12:28	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11354820003B	12/20/2011 10:56	William C Schwebel	1

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Analysis Report

Sample Description: HGR-121511-FD03 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502135
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRD03 SDG#: DHR11-19FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	42		9	1.04
10949	Benzene	71-43-2	0.7	U	0.7	1.04
10949	Bromobenzene	108-86-1	1	U	1	1.04
10949	Bromochloromethane	74-97-5	1	U	1	1.04
10949	Bromodichloromethane	75-27-4	1	U	1	1.04
10949	Bromoform	75-25-2	1	U	1	1.04
10949	Bromomethane	74-83-9	3	U	3	1.04
10949	2-Butanone	78-93-3	6	J	5	1.04
10949	n-Butylbenzene	104-51-8	1	U	1	1.04
10949	sec-Butylbenzene	135-98-8	1	U	1	1.04
10949	tert-Butylbenzene	98-06-6	1	U	1	1.04
10949	Carbon Disulfide	75-15-0	8		1	1.04
10949	Carbon Tetrachloride	56-23-5	1	U	1	1.04
10949	Chlorobenzene	108-90-7	1	U	1	1.04
10949	Chloroethane	75-00-3	3	U	3	1.04
10949	Chloroform	67-66-3	1	U	1	1.04
10949	Chloromethane	74-87-3	3	U	3	1.04
10949	2-Chlorotoluene	95-49-8	1	U	1	1.04
10949	4-Chlorotoluene	106-43-4	1	U	1	1.04
10949	Cyclohexane	110-82-7	1	U	1	1.04
10949	1,2-Dibromo-3-chloropropane	96-12-8	3	U	3	1.04
10949	Dibromochloromethane	124-48-1	1	U	1	1.04
10949	1,2-Dibromoethane	106-93-4	1	U	1	1.04
10949	Dibromomethane	74-95-3	1	U	1	1.04
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	1.04
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	1.04
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	1.04
10949	Dichlorodifluoromethane	75-71-8	3	U	3	1.04
10949	1,1-Dichloroethane	75-34-3	1	U	1	1.04
10949	1,2-Dichloroethane	107-06-2	1	U	1	1.04
10949	1,1-Dichloroethene	75-35-4	1	U	1	1.04
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	1.04
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	1.04
10949	1,2-Dichloropropane	78-87-5	1	U	1	1.04
10949	1,3-Dichloropropane	142-28-9	1	U	1	1.04
10949	2,2-Dichloropropane	594-20-7	1	U	1	1.04
10949	1,1-Dichloropropene	563-58-6	1	U	1	1.04
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	1.04
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	1.04
10949	Ethylbenzene	100-41-4	1	U	1	1.04
10949	Freon 113	76-13-1	3	U	3	1.04
10949	Hexachlorobutadiene	87-68-3	3	U	3	1.04
10949	2-Hexanone	591-78-6	4	U	4	1.04
10949	Isopropylbenzene	98-82-8	1	U	1	1.04
10949	p-Isopropyltoluene	99-87-6	1	U	1	1.04
10949	Methyl Acetate	79-20-9	3	U	3	1.04
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.7	U	0.7	1.04
10949	4-Methyl-2-pentanone	108-10-1	4	U	4	1.04
10949	Methylcyclohexane	108-87-2	1	U	1	1.04
10949	Methylene Chloride	75-09-2	3	U	3	1.04
10949	Naphthalene	91-20-3	1	U	1	1.04

Sample Description: HGR-121511-FD03 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502135
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRD03 SDG#: DHR11-19FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	1.04
10949	Styrene	100-42-5	1	U	1	1.04
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	1.04
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	1.04
10949	Tetrachloroethene	127-18-4	1	U	1	1.04
10949	Toluene	108-88-3	1	U	1	1.04
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	1.04
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	1.04
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	1.04
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	1.04
10949	Trichloroethene	79-01-6	1	U	1	1.04
10949	Trichlorofluoromethane	75-69-4	3	U	3	1.04
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	1.04
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	1.04
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	1.04
10949	Vinyl Acetate	108-05-4	3	U	3	1.04
10949	Vinyl Chloride	75-01-4	1	U	1	1.04
10949	m+p-Xylene	179601-23-1	1	U	1	1.04
10949	o-Xylene	95-47-6	1	U	1	1.04
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	5	J	4	1
10727	Benzo(a)pyrene	50-32-8	6	J	4	1
10727	Benzo(b)fluoranthene	205-99-2	7	J	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	J	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	J	4	1
10727	Benzyl alcohol	100-51-6	210	U	210	1
10727	1,1'-Biphenyl	92-52-4	21	U	21	1
10727	4-Bromophenyl-phenylether	101-55-3	21	U	21	1
10727	Butylbenzylphthalate	85-68-7	83	U	83	1
10727	Di-n-butylphthalate	84-74-2	83	U	83	1
10727	Carbazole	86-74-8	21	U	21	1
10727	4-Chloro-3-methylphenol	59-50-7	21	U	21	1
10727	4-Chloroaniline	106-47-8	21	U	21	1
10727	bis(2-Chloroethoxy)methane	111-91-1	21	U	21	1
10727	bis(2-Chloroethyl)ether	111-44-4	21	U	21	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	21	U	21	1
10727	4-Chlorophenyl-phenylether	7005-72-3	21	U	21	1
10727	Chrysene	218-01-9	7	J	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	21	U	21	1
10727	3,3'-Dichlorobenzidine	91-94-1	130	U	130	1
10727	2,4-Dichlorophenol	120-83-2	21	U	21	1
10727	Diethylphthalate	84-66-2	83	U	83	1
10727	2,4-Dimethylphenol	105-67-9	21	U	21	1
10727	Dimethylphthalate	131-11-3	83	U	83	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	210	U	210	1

Sample Description: HGR-121511-FD03 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502135
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRD03 SDG#: DHR11-19FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	420	U	420	1
10727	2,4-Dinitrotoluene	121-14-2	83	U	83	1
10727	2,6-Dinitrotoluene	606-20-2	21	U	21	1
10727	1,4-Dioxane	123-91-1	130	U	130	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	83	U	83	1
10727	Fluoranthene	206-44-0	12	J	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	210	U	210	1
10727	Hexachloroethane	67-72-1	42	U	42	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	21	U	21	1
10727	2-Methylnaphthalene	91-57-6	9	J	4	1
10727	2-Methylphenol	95-48-7	21	U	21	1
10727	4-Methylphenol	106-44-5	21	U	21	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	21	U	21	1
10727	3-Nitroaniline	99-09-2	83	U	83	1
10727	4-Nitroaniline	100-01-6	83	U	83	1
10727	Nitrobenzene	98-95-3	21	U	21	1
10727	2-Nitrophenol	88-75-5	21	U	21	1
10727	4-Nitrophenol	100-02-7	210	U	210	1
10727	N-Nitroso-di-n-propylamine	621-64-7	21	U	21	1
10727	N-Nitrosodiphenylamine	86-30-6	21	U	21	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	83	U	83	1
10727	Pentachlorophenol	87-86-5	42	U	42	1
10727	Phenanthrene	85-01-8	12	J	4	1
10727	Phenol	108-95-2	21	U	21	1
10727	Pyrene	129-00-0	11	J	4	1
10727	2,4,5-Trichlorophenol	95-95-4	21	U	21	1
10727	2,4,6-Trichlorophenol	88-06-2	21	U	21	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	215		0.0224	1
06949	Cadmium	7440-43-9	0.556	J	0.0244	1
06951	Chromium	7440-47-3	18.0		0.171	1
06955	Lead	7439-92-1	22.3		0.268	1
06936	Selenium	7782-49-2	0.829	U	0.829	1
06966	Silver	7440-22-4	0.101	U	0.101	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	6.46		0.101	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	4.47	J	0.415	50

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Analysis Report

Sample Description: HGR-121511-FD03 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502135
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRD03 SDG#: DHR11-19FD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	20.4	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113622AA	12/29/2011 02:07	Kelly E Keller	1.04
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201135026461	12/16/2011 13:33	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201135026461	12/16/2011 13:34	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201135026461	12/16/2011 13:33	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11354SLE026	12/28/2011 16:52	Linda M Hartenstine	1
10809	BNA Soil Microwave	SW-846 3546	1	11354SLE026	12/21/2011 07:30	Katheryne V Sponheimer	1
06946	Barium	SW-846 6010B	2	120045708004	01/05/2012 07:44	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	113535708001	12/30/2011 13:56	Joanne M Gates	1
06951	Chromium	SW-846 6010B	1	113535708001	12/30/2011 13:56	Joanne M Gates	1
06955	Lead	SW-846 6010B	1	113535708001	12/30/2011 13:56	Joanne M Gates	1
06936	Selenium	SW-846 6010B	1	113535708001	01/04/2012 01:09	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	113535708001	12/30/2011 13:56	Joanne M Gates	1
06125	Arsenic	SW-846 6020	1	113531026002A	12/22/2011 13:27	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113535711001	12/20/2011 09:11	Damary Valentin	50
05708	SW SW846 ICP Digest	SW-846 3050B	1	113535708001	12/19/2011 11:22	James L Mertz	1
05708	SW SW846 ICP Digest	SW-846 3050B	2	120045708004	01/04/2012 20:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113531026002	12/19/2011 10:58	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113535711001	12/19/2011 12:28	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11354820003B	12/20/2011 10:56	William C Schwebel	1

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Analysis Report

Sample Description: HGR-121511-FD04 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502136
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRD04 SDG#: DHR11-20FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	140		8	1.1
10949	Benzene	71-43-2	0.6	U	0.6	1.1
10949	Bromobenzene	108-86-1	1	U	1	1.1
10949	Bromochloromethane	74-97-5	1	U	1	1.1
10949	Bromodichloromethane	75-27-4	1	U	1	1.1
10949	Bromoform	75-25-2	1	U	1	1.1
10949	Bromomethane	74-83-9	2	U	2	1.1
10949	2-Butanone	78-93-3	37		5	1.1
10949	n-Butylbenzene	104-51-8	1	U	1	1.1
10949	sec-Butylbenzene	135-98-8	1	U	1	1.1
10949	tert-Butylbenzene	98-06-6	1	U	1	1.1
10949	Carbon Disulfide	75-15-0	2	J	1	1.1
10949	Carbon Tetrachloride	56-23-5	1	U	1	1.1
10949	Chlorobenzene	108-90-7	1	U	1	1.1
10949	Chloroethane	75-00-3	2	U	2	1.1
10949	Chloroform	67-66-3	1	U	1	1.1
10949	Chloromethane	74-87-3	2	U	2	1.1
10949	2-Chlorotoluene	95-49-8	1	U	1	1.1
10949	4-Chlorotoluene	106-43-4	1	U	1	1.1
10949	Cyclohexane	110-82-7	1	U	1	1.1
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	1.1
10949	Dibromochloromethane	124-48-1	1	U	1	1.1
10949	1,2-Dibromoethane	106-93-4	1	U	1	1.1
10949	Dibromomethane	74-95-3	1	U	1	1.1
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	1.1
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	1.1
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	1.1
10949	Dichlorodifluoromethane	75-71-8	2	U	2	1.1
10949	1,1-Dichloroethane	75-34-3	1	U	1	1.1
10949	1,2-Dichloroethane	107-06-2	1	U	1	1.1
10949	1,1-Dichloroethene	75-35-4	1	U	1	1.1
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	1.1
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	1.1
10949	1,2-Dichloropropane	78-87-5	1	U	1	1.1
10949	1,3-Dichloropropane	142-28-9	1	U	1	1.1
10949	2,2-Dichloropropane	594-20-7	1	U	1	1.1
10949	1,1-Dichloropropene	563-58-6	1	U	1	1.1
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	1.1
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	1.1
10949	Ethylbenzene	100-41-4	1	U	1	1.1
10949	Freon 113	76-13-1	2	U	2	1.1
10949	Hexachlorobutadiene	87-68-3	2	U	2	1.1
10949	2-Hexanone	591-78-6	9	J	4	1.1
10949	Isopropylbenzene	98-82-8	1	U	1	1.1
10949	p-Isopropyltoluene	99-87-6	1	U	1	1.1
10949	Methyl Acetate	79-20-9	2	U	2	1.1
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.6	U	0.6	1.1
10949	4-Methyl-2-pentanone	108-10-1	4	U	4	1.1
10949	Methylcyclohexane	108-87-2	1	U	1	1.1
10949	Methylene Chloride	75-09-2	3	J	2	1.1
10949	Naphthalene	91-20-3	1	U	1	1.1

Sample Description: HGR-121511-FD04 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502136
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRD04 SDG#: DHR11-20FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	1.1
10949	Styrene	100-42-5	1	U	1	1.1
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	1.1
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	1.1
10949	Tetrachloroethene	127-18-4	1	U	1	1.1
10949	Toluene	108-88-3	1	U	1	1.1
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	1.1
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	1.1
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	1.1
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	1.1
10949	Trichloroethene	79-01-6	1	U	1	1.1
10949	Trichlorofluoromethane	75-69-4	2	U	2	1.1
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	1.1
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	1.1
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	1.1
10949	Vinyl Acetate	108-05-4	2	U	2	1.1
10949	Vinyl Chloride	75-01-4	1	U	1	1.1
10949	m+p-Xylene	179601-23-1	1	U	1	1.1
10949	o-Xylene	95-47-6	1	U	1	1.1
Trial ID: RE						
10949	Acetone	67-64-1	76		9	1.21
10949	Benzene	71-43-2	1	J	0.7	1.21
10949	Bromobenzene	108-86-1	1	U	1	1.21
10949	Bromochloromethane	74-97-5	1	U	1	1.21
10949	Bromodichloromethane	75-27-4	1	U	1	1.21
10949	Bromoform	75-25-2	1	U	1	1.21
10949	Bromomethane	74-83-9	3	U	3	1.21
10949	2-Butanone	78-93-3	18		5	1.21
10949	n-Butylbenzene	104-51-8	1	U	1	1.21
10949	sec-Butylbenzene	135-98-8	1	U	1	1.21
10949	tert-Butylbenzene	98-06-6	1	U	1	1.21
10949	Carbon Disulfide	75-15-0	11		1	1.21
10949	Carbon Tetrachloride	56-23-5	1	U	1	1.21
10949	Chlorobenzene	108-90-7	1	U	1	1.21
10949	Chloroethane	75-00-3	3	U	3	1.21
10949	Chloroform	67-66-3	1	U	1	1.21
10949	Chloromethane	74-87-3	3	U	3	1.21
10949	2-Chlorotoluene	95-49-8	1	U	1	1.21
10949	4-Chlorotoluene	106-43-4	1	U	1	1.21
10949	Cyclohexane	110-82-7	1	U	1	1.21
10949	1,2-Dibromo-3-chloropropane	96-12-8	3	U	3	1.21
10949	Dibromochloromethane	124-48-1	1	U	1	1.21
10949	1,2-Dibromoethane	106-93-4	1	U	1	1.21
10949	Dibromomethane	74-95-3	1	U	1	1.21
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	1.21
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	1.21
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	1.21
10949	Dichlorodifluoromethane	75-71-8	3	U	3	1.21
10949	1,1-Dichloroethane	75-34-3	1	U	1	1.21
10949	1,2-Dichloroethane	107-06-2	1	U	1	1.21

Sample Description: HGR-121511-FD04 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502136
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRD04 SDG#: DHR11-20FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	1,1-Dichloroethene	75-35-4	1	U	1	1.21
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	1.21
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	1.21
10949	1,2-Dichloropropane	78-87-5	1	U	1	1.21
10949	1,3-Dichloropropane	142-28-9	1	U	1	1.21
10949	2,2-Dichloropropane	594-20-7	1	U	1	1.21
10949	1,1-Dichloropropene	563-58-6	1	U	1	1.21
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	1.21
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	1.21
10949	Ethylbenzene	100-41-4	1	U	1	1.21
10949	Freon 113	76-13-1	3	U	3	1.21
10949	Hexachlorobutadiene	87-68-3	3	U	3	1.21
10949	2-Hexanone	591-78-6	4	U	4	1.21
10949	Isopropylbenzene	98-82-8	1	U	1	1.21
10949	p-Isopropyltoluene	99-87-6	1	U	1	1.21
10949	Methyl Acetate	79-20-9	3	U	3	1.21
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.7	U	0.7	1.21
10949	4-Methyl-2-pentanone	108-10-1	4	U	4	1.21
10949	Methylcyclohexane	108-87-2	1	U	1	1.21
10949	Methylene Chloride	75-09-2	5	J	3	1.21
10949	Naphthalene	91-20-3	11		1	1.21
10949	n-Propylbenzene	103-65-1	1	U	1	1.21
10949	Styrene	100-42-5	1	U	1	1.21
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	1.21
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	1.21
10949	Tetrachloroethene	127-18-4	1	U	1	1.21
10949	Toluene	108-88-3	4	J	1	1.21
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	1.21
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	1.21
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	1.21
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	1.21
10949	Trichloroethene	79-01-6	2	J	1	1.21
10949	Trichlorofluoromethane	75-69-4	3	U	3	1.21
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	1.21
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	1.21
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	1.21
10949	Vinyl Acetate	108-05-4	3	U	3	1.21
10949	Vinyl Chloride	75-01-4	1	U	1	1.21
10949	m+p-Xylene	179601-23-1	1	U	1	1.21
10949	o-Xylene	95-47-6	1	U	1	1.21

The GC/MS volatile internal standard peak areas were outside the QC limits. A re-analysis was performed, and the matrix effect was confirmed.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	99	J	37	10
10727	Acenaphthylene	208-96-8	120	J	37	10
10727	Anthracene	120-12-7	630		37	10
10727	Benzo(a)anthracene	56-55-3	3,400		37	10
10727	Benzo(a)pyrene	50-32-8	3,000		37	10
10727	Benzo(b)fluoranthene	205-99-2	4,700		37	10

Sample Description: HGR-121511-FD04 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502136
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRD04 SDG#: DHR11-20FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C			**ug/kg**		**ug/kg**	
10727	Benzo(g,h,i)perylene	191-24-2	1,700		37	10
10727	Benzo(k)fluoranthene	207-08-9	2,000		37	10
10727	Benzyl alcohol	100-51-6	1,800	U	1,800	10
10727	1,1'-Biphenyl	92-52-4	180	U	180	10
10727	4-Bromophenyl-phenylether	101-55-3	180	U	180	10
10727	Butylbenzylphthalate	85-68-7	730	U	730	10
10727	Di-n-butylphthalate	84-74-2	730	U	730	10
10727	Carbazole	86-74-8	370		180	10
10727	4-Chloro-3-methylphenol	59-50-7	180	U	180	10
10727	4-Chloroaniline	106-47-8	180	U	180	10
10727	bis(2-Chloroethoxy)methane	111-91-1	180	U	180	10
10727	bis(2-Chloroethyl)ether	111-44-4	180	U	180	10
10727	2-Chloronaphthalene	91-58-7	77	U	77	10
10727	2-Chlorophenol	95-57-8	180	U	180	10
10727	4-Chlorophenyl-phenylether	7005-72-3	180	U	180	10
10727	Chrysene	218-01-9	3,700		37	10
10727	Dibenz(a,h)anthracene	53-70-3	360		37	10
10727	Dibenzofuran	132-64-9	180	U	180	10
10727	3,3'-Dichlorobenzidine	91-94-1	1,100	U	1,100	10
10727	2,4-Dichlorophenol	120-83-2	180	U	180	10
10727	Diethylphthalate	84-66-2	730	U	730	10
10727	2,4-Dimethylphenol	105-67-9	180	U	180	10
10727	Dimethylphthalate	131-11-3	730	U	730	10
10727	4,6-Dinitro-2-methylphenol	534-52-1	1,800	U	1,800	10
10727	2,4-Dinitrophenol	51-28-5	3,700	U	3,700	10
10727	2,4-Dinitrotoluene	121-14-2	730	U	730	10
10727	2,6-Dinitrotoluene	606-20-2	180	U	180	10
10727	1,4-Dioxane	123-91-1	1,100	U	1,100	10
10727	bis(2-Ethylhexyl)phthalate	117-81-7	730	U	730	10
10727	Fluoranthene	206-44-0	10,000		37	10
10727	Fluorene	86-73-7	88	J	37	10
10727	Hexachlorobenzene	118-74-1	37	U	37	10
10727	Hexachlorocyclopentadiene	77-47-4	1,800	U	1,800	10
10727	Hexachloroethane	67-72-1	370	U	370	10
10727	Indeno(1,2,3-cd)pyrene	193-39-5	1,900		37	10
10727	Isophorone	78-59-1	180	U	180	10
10727	2-Methylnaphthalene	91-57-6	37	U	37	10
10727	2-Methylphenol	95-48-7	180	U	180	10
10727	4-Methylphenol	106-44-5	180	U	180	10
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	180	U	180	10
10727	3-Nitroaniline	99-09-2	730	U	730	10
10727	4-Nitroaniline	100-01-6	730	U	730	10
10727	Nitrobenzene	98-95-3	180	U	180	10
10727	2-Nitrophenol	88-75-5	180	U	180	10
10727	4-Nitrophenol	100-02-7	1,800	U	1,800	10
10727	N-Nitroso-di-n-propylamine	621-64-7	180	U	180	10
10727	N-Nitrosodiphenylamine	86-30-6	180	U	180	10

Sample Description: HGR-121511-FD04 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502136
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRD04 SDG#: DHR11-20FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	730	U	730	10
10727	Pentachlorophenol	87-86-5	370	U	370	10
10727	Phenanthrene	85-01-8	4,400		37	10
10727	Phenol	108-95-2	180	U	180	10
10727	Pyrene	129-00-0	7,100		37	10
10727	2,4,5-Trichlorophenol	95-95-4	180	U	180	10
10727	2,4,6-Trichlorophenol	88-06-2	180	U	180	10
	Reporting limits were raised due to interference from the sample matrix.					
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	384		0.0190	1
06949	Cadmium	7440-43-9	0.283	J	0.0214	1
06951	Chromium	7440-47-3	17.2		0.150	1
06955	Lead	7439-92-1	7.07		0.235	1
06936	Selenium	7782-49-2	4.88		0.726	1
06966	Silver	7440-22-4	0.775		0.0886	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	4.38		0.0854	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0073	U	0.0073	1
Wet Chemistry	**SM20 2540 G**		**%**		**%**	
00111	Moisture	n.a.	9.1		0.50	1
	"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.					

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113622AA	12/29/2011 02:29	Kelly E Keller	1.1
10949	8260 Ext. Soil Master	SW-846 8260B	2	A113631AA	12/29/2011 15:17	Emily R Styer	1.21
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201135026461	12/16/2011 13:38	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201135026461	12/16/2011 13:39	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201135026461	12/16/2011 13:37	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11354SLE026	12/28/2011 17:16	Linda M Hartenstine	10

Sample Description: HGR-121511-FD04 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502136
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRD04 SDG#: DHR11-20FD

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10809	BNA Soil Microwave	SW-846 3546	1	11354SLE026	12/21/2011 07:30	Katheryne V Sponheimer	1
06946	Barium	SW-846 6010B	2	120045708004	01/05/2012 07:48	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	113535708001	12/30/2011 14:00	Joanne M Gates	1
06951	Chromium	SW-846 6010B	1	113535708001	12/30/2011 14:00	Joanne M Gates	1
06955	Lead	SW-846 6010B	1	113535708001	12/30/2011 14:00	Joanne M Gates	1
06936	Selenium	SW-846 6010B	1	113535708001	01/04/2012 01:13	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	113535708001	01/04/2012 01:13	John W Yanzuk II	1
06125	Arsenic	SW-846 6020	1	113531026002A	12/22/2011 13:29	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113535711001	12/20/2011 09:12	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113535708001	12/19/2011 11:22	James L Mertz	1
05708	SW SW846 ICP Digest	SW-846 3050B	2	120045708004	01/04/2012 20:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113531026002	12/19/2011 10:58	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113535711001	12/19/2011 12:28	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11354820003B	12/20/2011 10:56	William C Schwebel	1

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Analysis Report

Sample Description: HGR-121511-FD05 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502137
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRD05 SDG#: DHR11-21FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	400	U	400	45.62
10949	Benzene	71-43-2	280	J	28	45.62
10949	Bromobenzene	108-86-1	56	U	56	45.62
10949	Bromochloromethane	74-97-5	56	U	56	45.62
10949	Bromodichloromethane	75-27-4	56	U	56	45.62
10949	Bromoform	75-25-2	56	U	56	45.62
10949	Bromomethane	74-83-9	110	U	110	45.62
10949	2-Butanone	78-93-3	230	U	230	45.62
10949	n-Butylbenzene	104-51-8	56	U	56	45.62
10949	sec-Butylbenzene	135-98-8	2,000		56	45.62
10949	tert-Butylbenzene	98-06-6	56	U	56	45.62
10949	Carbon Disulfide	75-15-0	56	U	56	45.62
10949	Carbon Tetrachloride	56-23-5	56	U	56	45.62
10949	Chlorobenzene	108-90-7	56	U	56	45.62
10949	Chloroethane	75-00-3	110	U	110	45.62
10949	Chloroform	67-66-3	56	U	56	45.62
10949	Chloromethane	74-87-3	110	U	110	45.62
10949	2-Chlorotoluene	95-49-8	56	U	56	45.62
10949	4-Chlorotoluene	106-43-4	56	U	56	45.62
10949	Cyclohexane	110-82-7	56	U	56	45.62
10949	1,2-Dibromo-3-chloropropane	96-12-8	110	U	110	45.62
10949	Dibromochloromethane	124-48-1	56	U	56	45.62
10949	1,2-Dibromoethane	106-93-4	56	U	56	45.62
10949	Dibromomethane	74-95-3	56	U	56	45.62
10949	1,2-Dichlorobenzene	95-50-1	56	U	56	45.62
10949	1,3-Dichlorobenzene	541-73-1	56	U	56	45.62
10949	1,4-Dichlorobenzene	106-46-7	56	U	56	45.62
10949	Dichlorodifluoromethane	75-71-8	110	U	110	45.62
10949	1,1-Dichloroethane	75-34-3	56	U	56	45.62
10949	1,2-Dichloroethane	107-06-2	56	U	56	45.62
10949	1,1-Dichloroethene	75-35-4	56	U	56	45.62
10949	cis-1,2-Dichloroethene	156-59-2	56	U	56	45.62
10949	trans-1,2-Dichloroethene	156-60-5	56	U	56	45.62
10949	1,2-Dichloropropane	78-87-5	56	U	56	45.62
10949	1,3-Dichloropropane	142-28-9	56	U	56	45.62
10949	2,2-Dichloropropane	594-20-7	56	U	56	45.62
10949	1,1-Dichloropropene	563-58-6	56	U	56	45.62
10949	cis-1,3-Dichloropropene	10061-01-5	56	U	56	45.62
10949	trans-1,3-Dichloropropene	10061-02-6	56	U	56	45.62
10949	Ethylbenzene	100-41-4	110	J	56	45.62
10949	Freon 113	76-13-1	110	U	110	45.62
10949	Hexachlorobutadiene	87-68-3	110	U	110	45.62
10949	2-Hexanone	591-78-6	170	U	170	45.62
10949	Isopropylbenzene	98-82-8	1,400		56	45.62
10949	p-Isopropyltoluene	99-87-6	56	U	56	45.62
10949	Methyl Acetate	79-20-9	120	J	110	45.62
10949	Methyl Tertiary Butyl Ether	1634-04-4	28	U	28	45.62
10949	4-Methyl-2-pentanone	108-10-1	170	U	170	45.62
10949	Methylcyclohexane	108-87-2	56	U	56	45.62
10949	Methylene Chloride	75-09-2	110	U	110	45.62
10949	Naphthalene	91-20-3	56	U	56	45.62

Sample Description: HGR-121511-FD05 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502137
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRD05 SDG#: DHR11-21FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	220	J	56	45.62
10949	Styrene	100-42-5	56	U	56	45.62
10949	1,1,1,2-Tetrachloroethane	630-20-6	56	U	56	45.62
10949	1,1,2,2-Tetrachloroethane	79-34-5	56	U	56	45.62
10949	Tetrachloroethene	127-18-4	56	U	56	45.62
10949	Toluene	108-88-3	81	J	56	45.62
10949	1,2,3-Trichlorobenzene	87-61-6	56	U	56	45.62
10949	1,2,4-Trichlorobenzene	120-82-1	56	U	56	45.62
10949	1,1,1-Trichloroethane	71-55-6	56	U	56	45.62
10949	1,1,2-Trichloroethane	79-00-5	56	U	56	45.62
10949	Trichloroethene	79-01-6	56	U	56	45.62
10949	Trichlorofluoromethane	75-69-4	110	U	110	45.62
10949	1,2,3-Trichloropropane	96-18-4	56	U	56	45.62
10949	1,2,4-Trimethylbenzene	95-63-6	56	U	56	45.62
10949	1,3,5-Trimethylbenzene	108-67-8	56	U	56	45.62
10949	Vinyl Acetate	108-05-4	110	U	110	45.62
10949	Vinyl Chloride	75-01-4	56	U	56	45.62
10949	m+p-Xylene	179601-23-1	56	U	56	45.62
10949	o-Xylene	95-47-6	56	U	56	45.62
Trial ID: RE						
10949	Acetone	67-64-1	400	U	400	45.62
10949	Benzene	71-43-2	290		28	45.62
10949	Bromobenzene	108-86-1	56	U	56	45.62
10949	Bromochloromethane	74-97-5	56	U	56	45.62
10949	Bromodichloromethane	75-27-4	56	U	56	45.62
10949	Bromoform	75-25-2	56	U	56	45.62
10949	Bromomethane	74-83-9	110	U	110	45.62
10949	2-Butanone	78-93-3	230	U	230	45.62
10949	n-Butylbenzene	104-51-8	56	U	56	45.62
10949	sec-Butylbenzene	135-98-8	2,200		56	45.62
10949	tert-Butylbenzene	98-06-6	56	U	56	45.62
10949	Carbon Disulfide	75-15-0	56	U	56	45.62
10949	Carbon Tetrachloride	56-23-5	56	U	56	45.62
10949	Chlorobenzene	108-90-7	56	U	56	45.62
10949	Chloroethane	75-00-3	110	U	110	45.62
10949	Chloroform	67-66-3	56	U	56	45.62
10949	Chloromethane	74-87-3	110	U	110	45.62
10949	2-Chlorotoluene	95-49-8	56	U	56	45.62
10949	4-Chlorotoluene	106-43-4	56	U	56	45.62
10949	Cyclohexane	110-82-7	56	U	56	45.62
10949	1,2-Dibromo-3-chloropropane	96-12-8	110	U	110	45.62
10949	Dibromochloromethane	124-48-1	56	U	56	45.62
10949	1,2-Dibromoethane	106-93-4	56	U	56	45.62
10949	Dibromomethane	74-95-3	56	U	56	45.62
10949	1,2-Dichlorobenzene	95-50-1	56	U	56	45.62
10949	1,3-Dichlorobenzene	541-73-1	56	U	56	45.62
10949	1,4-Dichlorobenzene	106-46-7	56	U	56	45.62
10949	Dichlorodifluoromethane	75-71-8	110	U	110	45.62
10949	1,1-Dichloroethane	75-34-3	56	U	56	45.62
10949	1,2-Dichloroethane	107-06-2	56	U	56	45.62

Sample Description: HGR-121511-FD05 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502137
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRD05 SDG#: DHR11-21FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	1,1-Dichloroethene	75-35-4	56	U	56	45.62
10949	cis-1,2-Dichloroethene	156-59-2	56	U	56	45.62
10949	trans-1,2-Dichloroethene	156-60-5	56	U	56	45.62
10949	1,2-Dichloropropane	78-87-5	56	U	56	45.62
10949	1,3-Dichloropropane	142-28-9	56	U	56	45.62
10949	2,2-Dichloropropane	594-20-7	56	U	56	45.62
10949	1,1-Dichloropropene	563-58-6	56	U	56	45.62
10949	cis-1,3-Dichloropropene	10061-01-5	56	U	56	45.62
10949	trans-1,3-Dichloropropene	10061-02-6	56	U	56	45.62
10949	Ethylbenzene	100-41-4	110	J	56	45.62
10949	Freon 113	76-13-1	110	U	110	45.62
10949	Hexachlorobutadiene	87-68-3	110	U	110	45.62
10949	2-Hexanone	591-78-6	170	U	170	45.62
10949	Isopropylbenzene	98-82-8	1,400		56	45.62
10949	p-Isopropyltoluene	99-87-6	56	U	56	45.62
10949	Methyl Acetate	79-20-9	120	J	110	45.62
10949	Methyl Tertiary Butyl Ether	1634-04-4	28	U	28	45.62
10949	4-Methyl-2-pentanone	108-10-1	170	U	170	45.62
10949	Methylcyclohexane	108-87-2	56	U	56	45.62
10949	Methylene Chloride	75-09-2	110	U	110	45.62
10949	Naphthalene	91-20-3	56	U	56	45.62
10949	n-Propylbenzene	103-65-1	250	J	56	45.62
10949	Styrene	100-42-5	56	U	56	45.62
10949	1,1,1,2-Tetrachloroethane	630-20-6	56	U	56	45.62
10949	1,1,2,2-Tetrachloroethane	79-34-5	56	U	56	45.62
10949	Tetrachloroethene	127-18-4	56	U	56	45.62
10949	Toluene	108-88-3	97	J	56	45.62
10949	1,2,3-Trichlorobenzene	87-61-6	56	U	56	45.62
10949	1,2,4-Trichlorobenzene	120-82-1	56	U	56	45.62
10949	1,1,1-Trichloroethane	71-55-6	56	U	56	45.62
10949	1,1,2-Trichloroethane	79-00-5	56	U	56	45.62
10949	Trichloroethene	79-01-6	56	U	56	45.62
10949	Trichlorofluoromethane	75-69-4	110	U	110	45.62
10949	1,2,3-Trichloropropane	96-18-4	56	U	56	45.62
10949	1,2,4-Trimethylbenzene	95-63-6	56	U	56	45.62
10949	1,3,5-Trimethylbenzene	108-67-8	56	U	56	45.62
10949	Vinyl Acetate	108-05-4	110	U	110	45.62
10949	Vinyl Chloride	75-01-4	56	U	56	45.62
10949	m+p-Xylene	179601-23-1	56	U	56	45.62
10949	o-Xylene	95-47-6	56	U	56	45.62

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 1,2,3-trichlorobenzene.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	6	J	4	1
10727	Anthracene	120-12-7	5	J	4	1
10727	Benzo(a)anthracene	56-55-3	19	J	4	1
10727	Benzo(a)pyrene	50-32-8	27		4	1

Sample Description: HGR-121511-FD05 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502137
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRD05 SDG#: DHR11-21FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C			**ug/kg**		**ug/kg**	
10727	Benzo(b)fluoranthene	205-99-2	36		4	1
10727	Benzo(g,h,i)perylene	191-24-2	22		4	1
10727	Benzo(k)fluoranthene	207-08-9	15	J	4	1
10727	Benzyl alcohol	100-51-6	210	U	210	1
10727	1,1'-Biphenyl	92-52-4	21	U	21	1
10727	4-Bromophenyl-phenylether	101-55-3	21	U	21	1
10727	Butylbenzylphthalate	85-68-7	82	U	82	1
10727	Di-n-butylphthalate	84-74-2	82	U	82	1
10727	Carbazole	86-74-8	21	U	21	1
10727	4-Chloro-3-methylphenol	59-50-7	21	U	21	1
10727	4-Chloroaniline	106-47-8	21	U	21	1
10727	bis(2-Chloroethoxy)methane	111-91-1	21	U	21	1
10727	bis(2-Chloroethyl)ether	111-44-4	21	U	21	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	21	U	21	1
10727	4-Chlorophenyl-phenylether	7005-72-3	21	U	21	1
10727	Chrysene	218-01-9	27		4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	21	U	21	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	21	U	21	1
10727	Diethylphthalate	84-66-2	82	U	82	1
10727	2,4-Dimethylphenol	105-67-9	21	U	21	1
10727	Dimethylphthalate	131-11-3	82	U	82	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	210	U	210	1
10727	2,4-Dinitrophenol	51-28-5	410	U	410	1
10727	2,4-Dinitrotoluene	121-14-2	82	U	82	1
10727	2,6-Dinitrotoluene	606-20-2	21	U	21	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	82	U	82	1
10727	Fluoranthene	206-44-0	66		4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	210	U	210	1
10727	Hexachloroethane	67-72-1	41	U	41	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	18	J	4	1
10727	Isophorone	78-59-1	21	U	21	1
10727	2-Methylnaphthalene	91-57-6	4	J	4	1
10727	2-Methylphenol	95-48-7	21	U	21	1
10727	4-Methylphenol	106-44-5	21	U	21	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	21	U	21	1
10727	3-Nitroaniline	99-09-2	82	U	82	1
10727	4-Nitroaniline	100-01-6	82	U	82	1
10727	Nitrobenzene	98-95-3	21	U	21	1
10727	2-Nitrophenol	88-75-5	21	U	21	1
10727	4-Nitrophenol	100-02-7	210	U	210	1
10727	N-Nitroso-di-n-propylamine	621-64-7	21	U	21	1
10727	N-Nitrosodiphenylamine	86-30-6	21	U	21	1

Sample Description: HGR-121511-FD05 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502137
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRD05 SDG#: DHR11-21FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	82	U	82	1
10727	Pentachlorophenol	87-86-5	41	U	41	1
10727	Phenanthrene	85-01-8	40		4	1
10727	Phenol	108-95-2	21	U	21	1
10727	Pyrene	129-00-0	54		4	1
10727	2,4,5-Trichlorophenol	95-95-4	21	U	21	1
10727	2,4,6-Trichlorophenol	88-06-2	21	U	21	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	164		0.0218	1
06949	Cadmium	7440-43-9	0.583	J	0.0245	1
06951	Chromium	7440-47-3	19.8		0.172	1
06955	Lead	7439-92-1	17.1		0.270	1
06936	Selenium	7782-49-2	0.833	U	0.833	1
06966	Silver	7440-22-4	0.102	U	0.102	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	8.05		0.0952	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0283	J	0.0082	1
Wet Chemistry	**SM20 2540 G**		**%**		**%**	
00111	Moisture	n.a.	19.2		0.50	1
	"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.					

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	R113631AA	12/29/2011 13:37	Kerri E Legerlotz	45.62
10949	8260 Ext. Soil Master	SW-846 8260B	2	R113631AA	12/29/2011 19:44	Kerri E Legerlotz	45.62
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201135026461	12/16/2011 13:40	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201135026461	12/16/2011 13:41	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201135026461	12/16/2011 13:40	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11354SLE026	12/28/2011 17:41	Linda M Hartenstine	1

Sample Description: HGR-121511-FD05 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502137
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRD05 SDG#: DHR11-21FD

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10809	BNA Soil Microwave	SW-846 3546	1	11354SLE026	12/21/2011 07:30	Katheryne V Sponheimer	1
06946	Barium	SW-846 6010B	2	120045708004	01/05/2012 07:53	Tara L Snyder	1
06949	Cadmium	SW-846 6010B	1	113535708001	12/30/2011 14:04	Joanne M Gates	1
06951	Chromium	SW-846 6010B	1	113535708001	12/30/2011 14:04	Joanne M Gates	1
06955	Lead	SW-846 6010B	1	113535708001	12/30/2011 14:04	Joanne M Gates	1
06936	Selenium	SW-846 6010B	1	113535708001	01/04/2012 01:17	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	113535708001	12/30/2011 14:04	Joanne M Gates	1
06125	Arsenic	SW-846 6020	1	113531026002A	12/22/2011 13:30	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113535711001	12/20/2011 09:13	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113535708001	12/19/2011 11:22	James L Mertz	1
05708	SW SW846 ICP Digest	SW-846 3050B	2	120045708004	01/04/2012 20:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113531026002	12/19/2011 10:58	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113535711001	12/19/2011 12:28	James L Mertz	1
00111	Moisture	SM20 2540 G	1	11354820003B	12/20/2011 10:56	William C Schwebel	1

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Analysis Report

Sample Description: HGR-121511-FD06 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502138
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRD06 SDG#: DHR11-22FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	180		7	0.87
10949	Benzene	71-43-2	0.5	U	0.5	0.87
10949	Bromobenzene	108-86-1	1	U	1	0.87
10949	Bromochloromethane	74-97-5	1	U	1	0.87
10949	Bromodichloromethane	75-27-4	1	U	1	0.87
10949	Bromoform	75-25-2	1	U	1	0.87
10949	Bromomethane	74-83-9	2	U	2	0.87
10949	2-Butanone	78-93-3	27		4	0.87
10949	n-Butylbenzene	104-51-8	1	U	1	0.87
10949	sec-Butylbenzene	135-98-8	1	U	1	0.87
10949	tert-Butylbenzene	98-06-6	1	U	1	0.87
10949	Carbon Disulfide	75-15-0	1	U	1	0.87
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.87
10949	Chlorobenzene	108-90-7	1	U	1	0.87
10949	Chloroethane	75-00-3	2	U	2	0.87
10949	Chloroform	67-66-3	1	U	1	0.87
10949	Chloromethane	74-87-3	2	U	2	0.87
10949	2-Chlorotoluene	95-49-8	1	U	1	0.87
10949	4-Chlorotoluene	106-43-4	1	U	1	0.87
10949	Cyclohexane	110-82-7	1	U	1	0.87
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.87
10949	Dibromochloromethane	124-48-1	1	U	1	0.87
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.87
10949	Dibromomethane	74-95-3	1	U	1	0.87
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.87
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.87
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.87
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.87
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.87
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.87
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.87
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.87
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.87
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.87
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.87
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.87
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.87
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.87
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.87
10949	Ethylbenzene	100-41-4	1	U	1	0.87
10949	Freon 113	76-13-1	2	U	2	0.87
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.87
10949	2-Hexanone	591-78-6	3	U	3	0.87
10949	Isopropylbenzene	98-82-8	1	U	1	0.87
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.87
10949	Methyl Acetate	79-20-9	2	U	2	0.87
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.87
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.87
10949	Methylcyclohexane	108-87-2	1	U	1	0.87
10949	Methylene Chloride	75-09-2	2	U	2	0.87
10949	Naphthalene	91-20-3	1	U	1	0.87

Sample Description: HGR-121511-FD06 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502138
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRD06 SDG#: DHR11-22FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.87
10949	Styrene	100-42-5	1	U	1	0.87
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.87
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.87
10949	Tetrachloroethene	127-18-4	1	U	1	0.87
10949	Toluene	108-88-3	1	U	1	0.87
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.87
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.87
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.87
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.87
10949	Trichloroethene	79-01-6	1	U	1	0.87
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.87
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.87
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.87
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.87
10949	Vinyl Acetate	108-05-4	2	U	2	0.87
10949	Vinyl Chloride	75-01-4	1	U	1	0.87
10949	m+p-Xylene	179601-23-1	1	U	1	0.87
10949	o-Xylene	95-47-6	1	U	1	0.87
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	7	J	4	1
10727	Acenaphthylene	208-96-8	9	J	4	1
10727	Anthracene	120-12-7	14	J	4	1
10727	Benzo(a)anthracene	56-55-3	54		4	1
10727	Benzo(a)pyrene	50-32-8	61		4	1
10727	Benzo(b)fluoranthene	205-99-2	88		4	1
10727	Benzo(g,h,i)perylene	191-24-2	48		4	1
10727	Benzo(k)fluoranthene	207-08-9	39		4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	20	U	20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	81	U	81	1
10727	Di-n-butylphthalate	84-74-2	81	U	81	1
10727	Carbazole	86-74-8	20	U	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	8	U	8	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	56		4	1
10727	Dibenz(a,h)anthracene	53-70-3	20	J	4	1
10727	Dibenzofuran	132-64-9	20	U	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1
10727	Diethylphthalate	84-66-2	81	U	81	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	81	U	81	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1

Sample Description: HGR-121511-FD06 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502138
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRD06 SDG#: DHR11-22FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	400	U	400	1
10727	2,4-Dinitrotoluene	121-14-2	81	U	81	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	81	U	81	1
10727	Fluoranthene	206-44-0	120		4	1
10727	Fluorene	86-73-7	5	J	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	40	U	40	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	38		4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	8	J	4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	81	U	81	1
10727	4-Nitroaniline	100-01-6	81	U	81	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	81	U	81	1
10727	Pentachlorophenol	87-86-5	40	U	40	1
10727	Phenanthrene	85-01-8	69		4	1
10727	Phenol	108-95-2	20	U	20	1
10727	Pyrene	129-00-0	94		4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
	The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: benzo(a)anthracene					
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	121		0.0214	1
06949	Cadmium	7440-43-9	0.156	J	0.0238	1
06951	Chromium	7440-47-3	21.9		0.167	1
06955	Lead	7439-92-1	20.5		0.262	1
06936	Selenium	7782-49-2	0.810	U	0.810	1
06966	Silver	7440-22-4	0.0989	U	0.0989	1
	SW-846 6020		**mg/kg**		**mg/kg**	

Sample Description: HGR-121511-FD06 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502138
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRD06 SDG#: DHR11-22FD

CAT No.	Analysis Name		CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals		**SW-846 6020**		**mg/kg**	**mg/kg**	
06125	Arsenic		7440-38-2	10.3	0.0962	2
		SW-846 7471A		**mg/kg**	**mg/kg**	
00159	Mercury		7439-97-6	0.0287 J	0.0081	1
Wet Chemistry		**SM20 2540 G**		**%**	**%**	
00111	Moisture		n.a.	17.7	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113622AA	12/29/2011 02:52	Kelly E Keller	0.87
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201135026461	12/16/2011 13:42	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201135026461	12/16/2011 13:42	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201135026461	12/16/2011 13:42	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11354SLF026	12/22/2011 04:13	Jennifer R Riggs	1
10809	BNA Soil Microwave	SW-846 3546	1	11354SLF026	12/21/2011 07:20	Katheryne V Sponheimer	1
06946	Barium	SW-846 6010B	1	113545708002	12/21/2011 16:02	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113545708002	12/21/2011 16:02	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113545708002	12/21/2011 16:02	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113545708002	12/21/2011 16:02	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113545708002	12/21/2011 16:02	Eric L Eby	1
06966	Silver	SW-846 6010B	1	113545708002	12/21/2011 16:02	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113571026001A	12/27/2011 14:03	David K Beck	2
00159	Mercury	SW-846 7471A	1	113545711003	12/21/2011 09:27	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113545708002	12/20/2011 22:10	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113571026001	12/26/2011 09:55	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113545711003	12/21/2011 01:40	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11354820005A	12/20/2011 20:46	Scott W Freisher	1

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Analysis Report

Sample Description: HGR-121511-FD07 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502139
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRD07 SDG#: DHR11-23FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	85		7	0.84
10949	Benzene	71-43-2	0.5	U	0.5	0.84
10949	Bromobenzene	108-86-1	1	U	1	0.84
10949	Bromochloromethane	74-97-5	1	U	1	0.84
10949	Bromodichloromethane	75-27-4	1	U	1	0.84
10949	Bromoform	75-25-2	1	U	1	0.84
10949	Bromomethane	74-83-9	2	U	2	0.84
10949	2-Butanone	78-93-3	6	J	4	0.84
10949	n-Butylbenzene	104-51-8	1	U	1	0.84
10949	sec-Butylbenzene	135-98-8	1	U	1	0.84
10949	tert-Butylbenzene	98-06-6	1	U	1	0.84
10949	Carbon Disulfide	75-15-0	1	U	1	0.84
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.84
10949	Chlorobenzene	108-90-7	1	U	1	0.84
10949	Chloroethane	75-00-3	2	U	2	0.84
10949	Chloroform	67-66-3	1	U	1	0.84
10949	Chloromethane	74-87-3	2	U	2	0.84
10949	2-Chlorotoluene	95-49-8	1	U	1	0.84
10949	4-Chlorotoluene	106-43-4	1	U	1	0.84
10949	Cyclohexane	110-82-7	1	U	1	0.84
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.84
10949	Dibromochloromethane	124-48-1	1	U	1	0.84
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.84
10949	Dibromomethane	74-95-3	1	U	1	0.84
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.84
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.84
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.84
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.84
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.84
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.84
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.84
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.84
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.84
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.84
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.84
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.84
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.84
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.84
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.84
10949	Ethylbenzene	100-41-4	1	U	1	0.84
10949	Freon 113	76-13-1	2	U	2	0.84
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.84
10949	2-Hexanone	591-78-6	3	U	3	0.84
10949	Isopropylbenzene	98-82-8	1	U	1	0.84
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.84
10949	Methyl Acetate	79-20-9	2	U	2	0.84
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.84
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.84
10949	Methylcyclohexane	108-87-2	1	U	1	0.84
10949	Methylene Chloride	75-09-2	2	U	2	0.84
10949	Naphthalene	91-20-3	1	U	1	0.84

Sample Description: HGR-121511-FD07 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502139
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRD07 SDG#: DHR11-23FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.84
10949	Styrene	100-42-5	1	U	1	0.84
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.84
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.84
10949	Tetrachloroethene	127-18-4	1	U	1	0.84
10949	Toluene	108-88-3	1	U	1	0.84
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.84
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.84
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.84
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.84
10949	Trichloroethene	79-01-6	1	U	1	0.84
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.84
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.84
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.84
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.84
10949	Vinyl Acetate	108-05-4	2	U	2	0.84
10949	Vinyl Chloride	75-01-4	1	U	1	0.84
10949	m+p-Xylene	179601-23-1	1	U	1	0.84
10949	o-Xylene	95-47-6	1	U	1	0.84
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	66		4	1
10727	Acenaphthylene	208-96-8	17	J	4	1
10727	Anthracene	120-12-7	29		4	1
10727	Benzo(a)anthracene	56-55-3	80		4	1
10727	Benzo(a)pyrene	50-32-8	110		4	1
10727	Benzo(b)fluoranthene	205-99-2	160		4	1
10727	Benzo(g,h,i)perylene	191-24-2	77		4	1
10727	Benzo(k)fluoranthene	207-08-9	61		4	1
10727	Benzyl alcohol	100-51-6	190	U	190	1
10727	1,1'-Biphenyl	92-52-4	19	J	19	1
10727	4-Bromophenyl-phenylether	101-55-3	19	U	19	1
10727	Butylbenzylphthalate	85-68-7	78	U	78	1
10727	Di-n-butylphthalate	84-74-2	78	U	78	1
10727	Carbazole	86-74-8	30	J	19	1
10727	4-Chloro-3-methylphenol	59-50-7	19	U	19	1
10727	4-Chloroaniline	106-47-8	19	U	19	1
10727	bis(2-Chloroethoxy)methane	111-91-1	19	U	19	1
10727	bis(2-Chloroethyl)ether	111-44-4	19	U	19	1
10727	2-Chloronaphthalene	91-58-7	8	U	8	1
10727	2-Chlorophenol	95-57-8	19	U	19	1
10727	4-Chlorophenyl-phenylether	7005-72-3	19	U	19	1
10727	Chrysene	218-01-9	110		4	1
10727	Dibenz(a,h)anthracene	53-70-3	15	J	4	1
10727	Dibenzofuran	132-64-9	30	J	19	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	19	U	19	1
10727	Diethylphthalate	84-66-2	78	U	78	1
10727	2,4-Dimethylphenol	105-67-9	19	U	19	1
10727	Dimethylphthalate	131-11-3	78	U	78	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	190	U	190	1

Sample Description: HGR-121511-FD07 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502139
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRD07 SDG#: DHR11-23FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	390	U	390	1
10727	2,4-Dinitrotoluene	121-14-2	78	U	78	1
10727	2,6-Dinitrotoluene	606-20-2	19	U	19	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	78	U	78	1
10727	Fluoranthene	206-44-0	290		4	1
10727	Fluorene	86-73-7	41		4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	190	U	190	1
10727	Hexachloroethane	67-72-1	39	U	39	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	66		4	1
10727	Isophorone	78-59-1	19	U	19	1
10727	2-Methylnaphthalene	91-57-6	72		4	1
10727	2-Methylphenol	95-48-7	19	U	19	1
10727	4-Methylphenol	106-44-5	19	U	19	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	19	U	19	1
10727	3-Nitroaniline	99-09-2	78	U	78	1
10727	4-Nitroaniline	100-01-6	78	U	78	1
10727	Nitrobenzene	98-95-3	19	U	19	1
10727	2-Nitrophenol	88-75-5	19	U	19	1
10727	4-Nitrophenol	100-02-7	190	U	190	1
10727	N-Nitroso-di-n-propylamine	621-64-7	19	U	19	1
10727	N-Nitrosodiphenylamine	86-30-6	19	U	19	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	78	U	78	1
10727	Pentachlorophenol	87-86-5	39	U	39	1
10727	Phenanthrene	85-01-8	220		4	1
10727	Phenol	108-95-2	19	U	19	1
10727	Pyrene	129-00-0	210		4	1
10727	2,4,5-Trichlorophenol	95-95-4	19	U	19	1
10727	2,4,6-Trichlorophenol	88-06-2	19	U	19	1
	The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: benzo(a)anthracene					
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	134		0.0206	1
06949	Cadmium	7440-43-9	0.170	J	0.0229	1
06951	Chromium	7440-47-3	16.6		0.160	1
06955	Lead	7439-92-1	20.1		0.251	1
06936	Selenium	7782-49-2	0.779	J	0.777	1
06966	Silver	7440-22-4	0.0948	U	0.0948	1
	SW-846 6020		**mg/kg**		**mg/kg**	

Sample Description: HGR-121511-FD07 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502139
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRD07 SDG#: DHR11-23FD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 6020**		**mg/kg**	**mg/kg**	
06125	Arsenic	7440-38-2	8.52	0.0905	2
	SW-846 7471A		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0228 J	0.0079	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	14.2	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113622AA	12/29/2011 03:15	Kelly E Keller	0.84
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201135026461	12/16/2011 13:44	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201135026461	12/16/2011 13:44	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201135026461	12/16/2011 13:44	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11354SLF026	12/22/2011 04:38	Jennifer R Riggs	1
10809	BNA Soil Microwave	SW-846 3546	1	11354SLF026	12/21/2011 07:20	Katheryne V Sponheimer	1
06946	Barium	SW-846 6010B	1	113545708002	12/21/2011 16:06	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113545708002	12/21/2011 16:06	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113545708002	12/21/2011 16:06	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113545708002	12/21/2011 16:06	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113545708002	12/21/2011 16:06	Eric L Eby	1
06966	Silver	SW-846 6010B	1	113545708002	12/21/2011 16:06	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113571026001A	12/27/2011 14:05	David K Beck	2
00159	Mercury	SW-846 7471A	1	113545711003	12/21/2011 09:28	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113545708002	12/20/2011 22:10	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113571026001	12/26/2011 09:55	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113545711003	12/21/2011 01:40	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11354820005A	12/20/2011 20:46	Scott W Freisher	1

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Analysis Report

Sample Description: HGR-121511-FD08 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502140
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRD08 SDG#: DHR11-24FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	53		9	0.99
10949	Benzene	71-43-2	0.6	U	0.6	0.99
10949	Bromobenzene	108-86-1	1	U	1	0.99
10949	Bromochloromethane	74-97-5	1	U	1	0.99
10949	Bromodichloromethane	75-27-4	1	U	1	0.99
10949	Bromoform	75-25-2	1	U	1	0.99
10949	Bromomethane	74-83-9	2	U	2	0.99
10949	2-Butanone	78-93-3	9	J	5	0.99
10949	n-Butylbenzene	104-51-8	1	J	1	0.99
10949	sec-Butylbenzene	135-98-8	41		1	0.99
10949	tert-Butylbenzene	98-06-6	1	U	1	0.99
10949	Carbon Disulfide	75-15-0	1	U	1	0.99
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.99
10949	Chlorobenzene	108-90-7	1	U	1	0.99
10949	Chloroethane	75-00-3	2	U	2	0.99
10949	Chloroform	67-66-3	1	U	1	0.99
10949	Chloromethane	74-87-3	2	U	2	0.99
10949	2-Chlorotoluene	95-49-8	1	U	1	0.99
10949	4-Chlorotoluene	106-43-4	1	U	1	0.99
10949	Cyclohexane	110-82-7	1	U	1	0.99
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.99
10949	Dibromochloromethane	124-48-1	1	U	1	0.99
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.99
10949	Dibromomethane	74-95-3	1	U	1	0.99
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.99
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.99
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.99
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.99
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.99
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.99
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.99
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.99
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.99
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.99
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.99
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.99
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.99
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.99
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.99
10949	Ethylbenzene	100-41-4	1	U	1	0.99
10949	Freon 113	76-13-1	2	U	2	0.99
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.99
10949	2-Hexanone	591-78-6	4	U	4	0.99
10949	Isopropylbenzene	98-82-8	30		1	0.99
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.99
10949	Methyl Acetate	79-20-9	2	U	2	0.99
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.6	U	0.6	0.99
10949	4-Methyl-2-pentanone	108-10-1	4	U	4	0.99
10949	Methylcyclohexane	108-87-2	1	U	1	0.99
10949	Methylene Chloride	75-09-2	2	U	2	0.99
10949	Naphthalene	91-20-3	1	U	1	0.99

Sample Description: HGR-121511-FD08 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502140
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRD08 SDG#: DHR11-24FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	J	1	0.99
10949	Styrene	100-42-5	1	U	1	0.99
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.99
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.99
10949	Tetrachloroethene	127-18-4	1	U	1	0.99
10949	Toluene	108-88-3	1	U	1	0.99
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.99
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.99
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.99
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.99
10949	Trichloroethene	79-01-6	1	U	1	0.99
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.99
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.99
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.99
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.99
10949	Vinyl Acetate	108-05-4	2	U	2	0.99
10949	Vinyl Chloride	75-01-4	1	U	1	0.99
10949	m+p-Xylene	179601-23-1	1	U	1	0.99
10949	o-Xylene	95-47-6	1	U	1	0.99
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	210	U	210	1
10727	1,1'-Biphenyl	92-52-4	21	U	21	1
10727	4-Bromophenyl-phenylether	101-55-3	21	U	21	1
10727	Butylbenzylphthalate	85-68-7	83	U	83	1
10727	Di-n-butylphthalate	84-74-2	83	U	83	1
10727	Carbazole	86-74-8	21	U	21	1
10727	4-Chloro-3-methylphenol	59-50-7	21	U	21	1
10727	4-Chloroaniline	106-47-8	21	U	21	1
10727	bis(2-Chloroethoxy)methane	111-91-1	21	U	21	1
10727	bis(2-Chloroethyl)ether	111-44-4	21	U	21	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	21	U	21	1
10727	4-Chlorophenyl-phenylether	7005-72-3	21	U	21	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	21	U	21	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	21	U	21	1
10727	Diethylphthalate	84-66-2	83	U	83	1
10727	2,4-Dimethylphenol	105-67-9	21	U	21	1
10727	Dimethylphthalate	131-11-3	83	U	83	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	210	U	210	1

Sample Description: HGR-121511-FD08 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502140
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRD08 SDG#: DHR11-24FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	410	U	410	1
10727	2,4-Dinitrotoluene	121-14-2	83	U	83	1
10727	2,6-Dinitrotoluene	606-20-2	21	U	21	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	83	U	83	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	210	U	210	1
10727	Hexachloroethane	67-72-1	41	U	41	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	21	U	21	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	21	U	21	1
10727	4-Methylphenol	106-44-5	21	U	21	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	21	U	21	1
10727	3-Nitroaniline	99-09-2	83	U	83	1
10727	4-Nitroaniline	100-01-6	83	U	83	1
10727	Nitrobenzene	98-95-3	21	U	21	1
10727	2-Nitrophenol	88-75-5	21	U	21	1
10727	4-Nitrophenol	100-02-7	210	U	210	1
10727	N-Nitroso-di-n-propylamine	621-64-7	21	U	21	1
10727	N-Nitrosodiphenylamine	86-30-6	21	U	21	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	83	U	83	1
10727	Pentachlorophenol	87-86-5	41	U	41	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	21	U	21	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	21	U	21	1
10727	2,4,6-Trichlorophenol	88-06-2	21	U	21	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	176		0.0219	1
06949	Cadmium	7440-43-9	0.114	J	0.0243	1
06951	Chromium	7440-47-3	18.9		0.170	1
06955	Lead	7439-92-1	13.9		0.267	1
06936	Selenium	7782-49-2	0.826	U	0.826	1
06966	Silver	7440-22-4	0.101	U	0.101	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	7.54		0.0991	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0256	J	0.0082	1

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Analysis Report

Sample Description: HGR-121511-FD08 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6502140
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011 by OO

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRD08 SDG#: DHR11-24FD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	19.3	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113622AA	12/29/2011 03:38	Kelly E Keller	0.99
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201135026461	12/16/2011 13:46	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201135026461	12/16/2011 13:47	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201135026461	12/16/2011 13:46	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11354SLF026	12/22/2011 05:03	Jennifer R Riggs	1
10809	BNA Soil Microwave	SW-846 3546	1	11354SLF026	12/21/2011 07:20	Katheryne V Sponheimer	1
06946	Barium	SW-846 6010B	1	113545708002	12/21/2011 16:18	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113545708002	12/21/2011 16:18	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113545708002	12/21/2011 16:18	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113545708002	12/21/2011 16:18	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113545708002	12/21/2011 16:18	Eric L Eby	1
06966	Silver	SW-846 6010B	1	113545708002	12/21/2011 16:18	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113571026001A	12/27/2011 14:11	David K Beck	2
00159	Mercury	SW-846 7471A	1	113545711003	12/21/2011 09:30	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113545708002	12/20/2011 22:10	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113571026001	12/26/2011 09:55	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113545711003	12/21/2011 01:40	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11354820005A	12/20/2011 20:46	Scott W Freisher	1

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Analysis Report

Sample Description: 121511TB Water Sample
Dow Hanging Rock, OH

LLI Sample # WW 6502141
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRDTB SDG#: DHR11-25TB*

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**		**ug/l**	
10904	Acetone	67-64-1	6	U	6	1
10904	Benzene	71-43-2	0.5	U	0.5	1
10904	Bromobenzene	108-86-1	1	U	1	1
10904	Bromochloromethane	74-97-5	1	U	1	1
10904	Bromodichloromethane	75-27-4	1	U	1	1
10904	Bromoform	75-25-2	1	U	1	1
10904	Bromomethane	74-83-9	1	U	1	1
10904	2-Butanone	78-93-3	3	U	3	1
10904	n-Butylbenzene	104-51-8	1	U	1	1
10904	sec-Butylbenzene	135-98-8	1	U	1	1
10904	tert-Butylbenzene	98-06-6	1	U	1	1
10904	Carbon Disulfide	75-15-0	1	U	1	1
10904	Carbon Tetrachloride	56-23-5	1	U	1	1
10904	Chlorobenzene	108-90-7	0.8	U	0.8	1
10904	Chloroethane	75-00-3	1	U	1	1
10904	Chloroform	67-66-3	0.8	U	0.8	1
10904	Chloromethane	74-87-3	1	U	1	1
10904	2-Chlorotoluene	95-49-8	1	U	1	1
10904	4-Chlorotoluene	106-43-4	1	U	1	1
10904	Cyclohexane	110-82-7	2	U	2	1
10904	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	1
10904	Dibromochloromethane	124-48-1	1	U	1	1
10904	1,2-Dibromoethane	106-93-4	1	U	1	1
10904	Dibromomethane	74-95-3	1	U	1	1
10904	1,2-Dichlorobenzene	95-50-1	1	U	1	1
10904	1,3-Dichlorobenzene	541-73-1	1	U	1	1
10904	1,4-Dichlorobenzene	106-46-7	1	U	1	1
10904	Dichlorodifluoromethane	75-71-8	2	U	2	1
10904	1,1-Dichloroethane	75-34-3	1	U	1	1
10904	1,2-Dichloroethane	107-06-2	1	U	1	1
10904	1,1-Dichloroethene	75-35-4	0.8	U	0.8	1
10904	cis-1,2-Dichloroethene	156-59-2	0.8	U	0.8	1
10904	trans-1,2-Dichloroethene	156-60-5	0.8	U	0.8	1
10904	1,2-Dichloropropane	78-87-5	1	U	1	1
10904	1,3-Dichloropropane	142-28-9	1	U	1	1
10904	2,2-Dichloropropane	594-20-7	1	U	1	1
10904	1,1-Dichloropropene	563-58-6	1	U	1	1
10904	cis-1,3-Dichloropropene	10061-01-5	1	U	1	1
10904	trans-1,3-Dichloropropene	10061-02-6	1	U	1	1
10904	Ethylbenzene	100-41-4	0.8	U	0.8	1
10904	Freon 113	76-13-1	2	U	2	1
10904	Hexachlorobutadiene	87-68-3	2	U	2	1
10904	2-Hexanone	591-78-6	3	U	3	1
10904	Isopropylbenzene	98-82-8	1	U	1	1
10904	p-Isopropyltoluene	99-87-6	1	U	1	1
10904	Methyl Acetate	79-20-9	1	U	1	1
10904	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	1
10904	4-Methyl-2-pentanone	108-10-1	3	U	3	1
10904	Methylcyclohexane	108-87-2	1	U	1	1
10904	Methylene Chloride	75-09-2	2	U	2	1
10904	Naphthalene	91-20-3	1	U	1	1

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Analysis Report

Sample Description: 121511TB Water Sample
Dow Hanging Rock, OH

LLI Sample # WW 6502141
LLI Group # 1281468
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011

Submitted: 12/16/2011 09:30
Reported: 01/05/2012 10:25

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HRDTB SDG#: DHR11-25TB*

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**		**ug/l**	
10904	n-Propylbenzene	103-65-1	1	U	1	1
10904	Styrene	100-42-5	1	U	1	1
10904	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	1
10904	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	1
10904	Tetrachloroethene	127-18-4	0.8	U	0.8	1
10904	Toluene	108-88-3	0.7	U	0.7	1
10904	1,2,3-Trichlorobenzene	87-61-6	1	U	1	1
10904	1,2,4-Trichlorobenzene	120-82-1	1	U	1	1
10904	1,1,1-Trichloroethane	71-55-6	0.8	U	0.8	1
10904	1,1,2-Trichloroethane	79-00-5	0.8	U	0.8	1
10904	Trichloroethene	79-01-6	1	U	1	1
10904	Trichlorofluoromethane	75-69-4	2	U	2	1
10904	1,2,3-Trichloropropane	96-18-4	1	U	1	1
10904	1,2,4-Trimethylbenzene	95-63-6	1	U	1	1
10904	1,3,5-Trimethylbenzene	108-67-8	1	U	1	1
10904	Vinyl Acetate	108-05-4	2	U	2	1
10904	Vinyl Chloride	75-01-4	1	U	1	1
10904	m+p-Xylene	179601-23-1	0.8	U	0.8	1
10904	o-Xylene	95-47-6	0.8	U	0.8	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10904	8260 Ext. Water Master	SW-846 8260B	1	Y113621AA	12/28/2011 16:41	Chelsea B Eastep	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	Y113621AA	12/28/2011 16:41	Chelsea B Eastep	1

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1281468
Reported: 01/05/12 at 10:25 AM

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: A113611AA	Sample number(s): 6502119,6502123-6502128,6502130								
Acetone	7	U	7.	ug/kg	102	105	32-209	3	30
Benzene	0.5	U	0.5	ug/kg	91	94	80-120	4	30
Bromobenzene	1	U	1.	ug/kg	98	100	79-120	1	30
Bromochloromethane	1	U	1.	ug/kg	93	91	79-124	2	30
Bromodichloromethane	1	U	1.	ug/kg	90	94	78-120	3	30
Bromoform	1	U	1.	ug/kg	91	93	70-120	3	30
Bromomethane	2	U	2.	ug/kg	93	97	32-162	4	30
2-Butanone	4	U	4.	ug/kg	109	113	46-153	3	30
n-Butylbenzene	1	U	1.	ug/kg	98	101	72-120	3	30
sec-Butylbenzene	1	U	1.	ug/kg	101	104	75-120	3	30
tert-Butylbenzene	1	U	1.	ug/kg	96	99	75-120	3	30
Carbon Disulfide	1	U	1.	ug/kg	85	89	67-122	5	30
Carbon Tetrachloride	1	U	1.	ug/kg	95	100	69-122	6	30
Chlorobenzene	1	U	1.	ug/kg	95	96	80-120	2	30
Chloroethane	2	U	2.	ug/kg	87	91	37-154	4	30
Chloroform	1	U	1.	ug/kg	97	98	80-120	1	30
Chloromethane	2	U	2.	ug/kg	81	86	54-132	6	30
2-Chlorotoluene	1	U	1.	ug/kg	95	99	78-120	3	30
4-Chlorotoluene	1	U	1.	ug/kg	96	100	79-120	3	30
Cyclohexane	1	U	1.	ug/kg	93	98	62-121	5	30
1,2-Dibromo-3-chloropropane	2	U	2.	ug/kg	104	107	58-120	2	30
Dibromochloromethane	1	U	1.	ug/kg	93	94	77-120	2	30
1,2-Dibromoethane	1	U	1.	ug/kg	98	99	80-120	0	30
Dibromomethane	1	U	1.	ug/kg	90	93	80-120	3	30
1,2-Dichlorobenzene	1	U	1.	ug/kg	95	98	79-120	3	30
1,3-Dichlorobenzene	1	U	1.	ug/kg	98	100	78-120	2	30
1,4-Dichlorobenzene	1	U	1.	ug/kg	96	99	79-120	2	30
Dichlorodifluoromethane	2	U	2.	ug/kg	86	90	20-120	5	30
1,1-Dichloroethane	1	U	1.	ug/kg	96	100	80-120	4	30
1,2-Dichloroethane	1	U	1.	ug/kg	109	112	71-129	3	30
1,1-Dichloroethene	1	U	1.	ug/kg	88	92	73-123	5	30
cis-1,2-Dichloroethene	1	U	1.	ug/kg	88	91	80-120	4	30
trans-1,2-Dichloroethene	1	U	1.	ug/kg	89	92	79-120	3	30
1,2-Dichloropropane	1	U	1.	ug/kg	89	91	80-120	3	30
1,3-Dichloropropane	1	U	1.	ug/kg	97	99	80-120	2	30
2,2-Dichloropropane	1	U	1.	ug/kg	93	97	72-123	4	30
1,1-Dichloropropene	1	U	1.	ug/kg	94	98	77-120	5	30
cis-1,3-Dichloropropene	1	U	1.	ug/kg	87	89	80-120	3	30
trans-1,3-Dichloropropene	1	U	1.	ug/kg	93	94	77-120	1	30
Ethylbenzene	1	U	1.	ug/kg	100	102	80-120	3	30
Freon 113	2	U	2.	ug/kg	92	96	61-126	4	30
Hexachlorobutadiene	2	U	2.	ug/kg	101	104	57-120	4	30
2-Hexanone	3	U	3.	ug/kg	100	102	45-155	2	30
Isopropylbenzene	1	U	1.	ug/kg	101	104	76-120	3	30
p-Isopropyltoluene	1	U	1.	ug/kg	102	103	75-120	2	30

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1281468
Reported: 01/05/12 at 10:25 AM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Methyl Acetate	2	U	2.	ug/kg	127	128	61-152	1	30
Methyl Tertiary Butyl Ether	0.5	U	0.5	ug/kg	98	100	74-121	2	30
4-Methyl-2-pentanone	3	U	3.	ug/kg	106	110	61-134	4	30
Methylcyclohexane	1	U	1.	ug/kg	93	96	57-138	3	30
Methylene Chloride	2	U	2.	ug/kg	88	90	76-124	2	30
Naphthalene	1	U	1.	ug/kg	97	100	59-123	3	30
n-Propylbenzene	1	U	1.	ug/kg	101	105	77-120	3	30
Styrene	1	U	1.	ug/kg	99	101	76-120	2	30
1,1,1,2-Tetrachloroethane	1	U	1.	ug/kg	97	98	80-120	1	30
1,1,2,2-Tetrachloroethane	1	U	1.	ug/kg	91	94	71-123	3	30
Tetrachloroethene	1	U	1.	ug/kg	100	104	77-120	3	30
Toluene	1	U	1.	ug/kg	95	98	80-120	4	30
1,2,3-Trichlorobenzene	1	U	1.	ug/kg	102	103	64-120	1	30
1,2,4-Trichlorobenzene	1	U	1.	ug/kg	96	99	68-120	3	30
1,1,1-Trichloroethane	1	U	1.	ug/kg	94	98	71-125	4	30
1,1,2-Trichloroethane	1	U	1.	ug/kg	93	94	80-120	2	30
Trichloroethene	1	U	1.	ug/kg	89	94	80-120	5	30
Trichlorofluoromethane	2	U	2.	ug/kg	102	106	58-133	4	30
1,2,3-Trichloropropane	1	U	1.	ug/kg	96	98	71-123	2	30
1,2,4-Trimethylbenzene	1	U	1.	ug/kg	100	102	79-120	2	30
1,3,5-Trimethylbenzene	1	U	1.	ug/kg	101	104	78-120	3	30
Vinyl Acetate	2	U	2.	ug/kg	78	81	56-137	4	30
Vinyl Chloride	1	U	1.	ug/kg	82	87	53-120	6	30
m+p-Xylene	1	U	1.	ug/kg	97	100	80-120	2	30
o-Xylene	1	U	1.	ug/kg	94	97	80-120	3	30
Batch number: A113622AA	Sample number(s): 6502131,6502133-6502136,6502138-6502140								
Acetone	7	U	7.	ug/kg	139	138	32-209	1	30
Benzene	0.5	U	0.5	ug/kg	89	92	80-120	2	30
Bromobenzene	1	U	1.	ug/kg	96	98	79-120	1	30
Bromochloromethane	1	U	1.	ug/kg	94	94	79-124	0	30
Bromodichloromethane	1	U	1.	ug/kg	89	91	78-120	2	30
Bromoform	1	U	1.	ug/kg	92	90	70-120	2	30
Bromomethane	2	U	2.	ug/kg	95	99	32-162	4	30
2-Butanone	4	U	4.	ug/kg	119	113	46-153	5	30
n-Butylbenzene	1	U	1.	ug/kg	97	97	72-120	0	30
sec-Butylbenzene	1	U	1.	ug/kg	100	101	75-120	1	30
tert-Butylbenzene	1	U	1.	ug/kg	95	95	75-120	0	30
Carbon Disulfide	1	U	1.	ug/kg	79	81	67-122	3	30
Carbon Tetrachloride	1	U	1.	ug/kg	90	92	69-122	2	30
Chlorobenzene	1	U	1.	ug/kg	93	94	80-120	1	30
Chloroethane	2	U	2.	ug/kg	94	94	37-154	0	30
Chloroform	1	U	1.	ug/kg	95	95	80-120	0	30
Chloromethane	2	U	2.	ug/kg	89	90	54-132	1	30
2-Chlorotoluene	1	U	1.	ug/kg	94	96	78-120	2	30
4-Chlorotoluene	1	U	1.	ug/kg	96	96	79-120	0	30
Cyclohexane	1	U	1.	ug/kg	88	92	62-121	5	30
1,2-Dibromo-3-chloropropane	2	U	2.	ug/kg	108	104	58-120	4	30
Dibromochloromethane	1	U	1.	ug/kg	90	91	77-120	1	30
1,2-Dibromoethane	1	U	1.	ug/kg	97	95	80-120	2	30
Dibromomethane	1	U	1.	ug/kg	88	88	80-120	0	30
1,2-Dichlorobenzene	1	U	1.	ug/kg	95	95	79-120	1	30
1,3-Dichlorobenzene	1	U	1.	ug/kg	97	96	78-120	0	30
1,4-Dichlorobenzene	1	U	1.	ug/kg	96	97	79-120	1	30
Dichlorodifluoromethane	2	U	2.	ug/kg	85	89	20-120	4	30
1,1-Dichloroethane	1	U	1.	ug/kg	95	97	80-120	2	30
1,2-Dichloroethane	1	U	1.	ug/kg	106	105	71-129	1	30
1,1-Dichloroethene	1	U	1.	ug/kg	84	87	73-123	4	30

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1281468

Reported: 01/05/12 at 10:25 AM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
cis-1,2-Dichloroethene	1	U	1.	ug/kg	86	87	80-120	1	30
trans-1,2-Dichloroethene	1	U	1.	ug/kg	86	89	79-120	4	30
1,2-Dichloropropane	1	U	1.	ug/kg	88	89	80-120	1	30
1,3-Dichloropropane	1	U	1.	ug/kg	98	96	80-120	3	30
2,2-Dichloropropane	1	U	1.	ug/kg	89	91	72-123	3	30
1,1-Dichloropropene	1	U	1.	ug/kg	92	95	77-120	3	30
cis-1,3-Dichloropropene	1	U	1.	ug/kg	85	87	80-120	3	30
trans-1,3-Dichloropropene	1	U	1.	ug/kg	92	92	77-120	0	30
Ethylbenzene	1	U	1.	ug/kg	98	99	80-120	1	30
Freon 113	2	U	2.	ug/kg	86	87	61-126	0	30
Hexachlorobutadiene	2	U	2.	ug/kg	100	99	57-120	1	30
2-Hexanone	3	U	3.	ug/kg	108	105	45-155	3	30
Isopropylbenzene	1	U	1.	ug/kg	100	101	76-120	1	30
p-Isopropyltoluene	1	U	1.	ug/kg	101	100	75-120	1	30
Methyl Acetate	2	U	2.	ug/kg	135	141	61-152	5	30
Methyl Tertiary Butyl Ether	0.5	U	0.5	ug/kg	95	95	74-121	1	30
4-Methyl-2-pentanone	3	U	3.	ug/kg	118	113	61-134	4	30
Methylcyclohexane	1	U	1.	ug/kg	93	95	57-138	2	30
Methylene Chloride	2	U	2.	ug/kg	84	86	76-124	2	30
Naphthalene	1	U	1.	ug/kg	99	98	59-123	1	30
n-Propylbenzene	1	U	1.	ug/kg	101	102	77-120	1	30
Styrene	1	U	1.	ug/kg	99	99	76-120	1	30
1,1,1,2-Tetrachloroethane	1	U	1.	ug/kg	95	96	80-120	1	30
1,1,2,2-Tetrachloroethane	1	U	1.	ug/kg	95	93	71-123	2	30
Tetrachloroethene	1	U	1.	ug/kg	98	100	77-120	2	30
Toluene	1	U	1.	ug/kg	92	94	80-120	2	30
1,2,3-Trichlorobenzene	1	U	1.	ug/kg	98	99	64-120	1	30
1,2,4-Trichlorobenzene	1	U	1.	ug/kg	94	94	68-120	0	30
1,1,1-Trichloroethane	1	U	1.	ug/kg	91	94	71-125	3	30
1,1,2-Trichloroethane	1	U	1.	ug/kg	96	93	80-120	3	30
Trichloroethene	1	U	1.	ug/kg	87	90	80-120	3	30
Trichlorofluoromethane	2	U	2.	ug/kg	106	107	58-133	1	30
1,2,3-Trichloropropane	1	U	1.	ug/kg	99	96	71-123	2	30
1,2,4-Trimethylbenzene	1	U	1.	ug/kg	97	100	79-120	3	30
1,3,5-Trimethylbenzene	1	U	1.	ug/kg	100	102	78-120	2	30
Vinyl Acetate	2	U	2.	ug/kg	88	85	56-137	3	30
Vinyl Chloride	1	U	1.	ug/kg	85	89	53-120	5	30
m+p-Xylene	1	U	1.	ug/kg	94	97	80-120	3	30
o-Xylene	1	U	1.	ug/kg	93	94	80-120	1	30
Batch number: A113631AA	Sample number(s): 6502136								
Acetone	7	U	7.	ug/kg	102	85	32-209	18	30
Benzene	0.5	U	0.5	ug/kg	92	91	80-120	1	30
Bromobenzene	1	U	1.	ug/kg	99	98	79-120	1	30
Bromochloromethane	1	U	1.	ug/kg	94	92	79-124	3	30
Bromodichloromethane	1	U	1.	ug/kg	93	90	78-120	3	30
Bromoform	1	U	1.	ug/kg	95	88	70-120	7	30
Bromomethane	2	U	2.	ug/kg	94	92	32-162	3	30
2-Butanone	4	U	4.	ug/kg	116	100	46-153	15	30
n-Butylbenzene	1	U	1.	ug/kg	98	98	72-120	0	30
sec-Butylbenzene	1	U	1.	ug/kg	102	102	75-120	0	30
tert-Butylbenzene	1	U	1.	ug/kg	98	97	75-120	1	30
Carbon Disulfide	1	U	1.	ug/kg	85	85	67-122	0	30
Carbon Tetrachloride	1	U	1.	ug/kg	97	94	69-122	3	30
Chlorobenzene	1	U	1.	ug/kg	97	96	80-120	1	30
Chloroethane	2	U	2.	ug/kg	91	87	37-154	4	30
Chloroform	1	U	1.	ug/kg	98	95	80-120	3	30
Chloromethane	2	U	2.	ug/kg	81	80	54-132	1	30

*- Outside of specification

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1281468
Reported: 01/05/12 at 10:25 AM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
2-Chlorotoluene	1	U	1.	ug/kg	95	96	78-120	1	30
4-Chlorotoluene	1	U	1.	ug/kg	98	99	79-120	1	30
Cyclohexane	1	U	1.	ug/kg	96	94	62-121	1	30
1,2-Dibromo-3-chloropropane	2	U	2.	ug/kg	108	94	58-120	14	30
Dibromochloromethane	1	U	1.	ug/kg	95	91	77-120	4	30
1,2-Dibromoethane	1	U	1.	ug/kg	100	93	80-120	6	30
Dibromomethane	1	U	1.	ug/kg	91	87	80-120	5	30
1,2-Dichlorobenzene	1	U	1.	ug/kg	96	96	79-120	0	30
1,3-Dichlorobenzene	1	U	1.	ug/kg	99	98	78-120	0	30
1,4-Dichlorobenzene	1	U	1.	ug/kg	98	97	79-120	1	30
Dichlorodifluoromethane	2	U	2.	ug/kg	81	80	20-120	1	30
1,1-Dichloroethane	1	U	1.	ug/kg	99	98	80-120	1	30
1,2-Dichloroethane	1	U	1.	ug/kg	112	108	71-129	4	30
1,1-Dichloroethene	1	U	1.	ug/kg	89	90	73-123	1	30
cis-1,2-Dichloroethene	1	U	1.	ug/kg	89	89	80-120	1	30
trans-1,2-Dichloroethene	1	U	1.	ug/kg	91	89	79-120	2	30
1,2-Dichloropropane	1	U	1.	ug/kg	90	88	80-120	3	30
1,3-Dichloropropane	1	U	1.	ug/kg	99	96	80-120	4	30
2,2-Dichloropropane	1	U	1.	ug/kg	95	93	72-123	2	30
1,1-Dichloropropene	1	U	1.	ug/kg	96	95	77-120	1	30
cis-1,3-Dichloropropene	1	U	1.	ug/kg	87	84	80-120	3	30
trans-1,3-Dichloropropene	1	U	1.	ug/kg	95	93	77-120	2	30
Ethylbenzene	1	U	1.	ug/kg	100	100	80-120	0	30
Freon 113	2	U	2.	ug/kg	93	92	61-126	1	30
Hexachlorobutadiene	2	U	2.	ug/kg	102	102	57-120	1	30
2-Hexanone	3	U	3.	ug/kg	107	93	45-155	14	30
Isopropylbenzene	1	U	1.	ug/kg	103	102	76-120	1	30
p-Isopropyltoluene	1	U	1.	ug/kg	102	102	75-120	0	30
Methyl Acetate	2	U	2.	ug/kg	124	108	61-152	13	30
Methyl Tertiary Butyl Ether	0.5	U	0.5	ug/kg	98	95	74-121	3	30
4-Methyl-2-pentanone	3	U	3.	ug/kg	115	99	61-134	14	30
Methylcyclohexane	1	U	1.	ug/kg	98	96	57-138	2	30
Methylene Chloride	2	U	2.	ug/kg	88	89	76-124	0	30
Naphthalene	1	U	1.	ug/kg	99	94	59-123	5	30
n-Propylbenzene	1	U	1.	ug/kg	103	103	77-120	0	30
Styrene	1	U	1.	ug/kg	100	99	76-120	1	30
1,1,1,2-Tetrachloroethane	1	U	1.	ug/kg	97	97	80-120	0	30
1,1,2,2-Tetrachloroethane	1	U	1.	ug/kg	94	87	71-123	8	30
Tetrachloroethene	1	U	1.	ug/kg	101	100	77-120	1	30
Toluene	1	U	1.	ug/kg	96	96	80-120	1	30
1,2,3-Trichlorobenzene	1	U	1.	ug/kg	99	98	64-120	1	30
1,2,4-Trichlorobenzene	1	U	1.	ug/kg	94	95	68-120	2	30
1,1,1-Trichloroethane	1	U	1.	ug/kg	100	96	71-125	4	30
1,1,2-Trichloroethane	1	U	1.	ug/kg	96	91	80-120	6	30
Trichloroethene	1	U	1.	ug/kg	92	89	80-120	4	30
Trichlorofluoromethane	2	U	2.	ug/kg	110	106	58-133	4	30
1,2,3-Trichloropropane	1	U	1.	ug/kg	100	89	71-123	11	30
1,2,4-Trimethylbenzene	1	U	1.	ug/kg	100	101	79-120	1	30
1,3,5-Trimethylbenzene	1	U	1.	ug/kg	102	102	78-120	0	30
Vinyl Acetate	2	U	2.	ug/kg	100	97	56-137	3	30
Vinyl Chloride	1	U	1.	ug/kg	83	82	53-120	1	30
m+p-Xylene	1	U	1.	ug/kg	98	98	80-120	1	30
o-Xylene	1	U	1.	ug/kg	96	95	80-120	1	30
Batch number: Q113562AA	Sample number(s): 6502117-6502118,6502120-6502121								
Acetone	7	U	7.	ug/kg	81		32-209		
Benzene	0.5	U	0.5	ug/kg	92		80-120		
Bromobenzene	1	U	1.	ug/kg	90		79-120		

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1281468
Reported: 01/05/12 at 10:25 AM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Bromochloromethane	1	U	1.	ug/kg	88		79-124		
Bromodichloromethane	1	U	1.	ug/kg	87		78-120		
Bromoform	1	U	1.	ug/kg	71		70-120		
Bromomethane	2	U	2.	ug/kg	79		32-162		
2-Butanone	4	U	4.	ug/kg	58		46-153		
n-Butylbenzene	1	U	1.	ug/kg	93		72-120		
sec-Butylbenzene	1	U	1.	ug/kg	92		75-120		
tert-Butylbenzene	1	U	1.	ug/kg	90		75-120		
Carbon Disulfide	1	U	1.	ug/kg	90		67-122		
Carbon Tetrachloride	1	U	1.	ug/kg	89		69-122		
Chlorobenzene	1	U	1.	ug/kg	92		80-120		
Chloroethane	2	U	2.	ug/kg	78		37-154		
Chloroform	1	U	1.	ug/kg	92		80-120		
Chloromethane	2	U	2.	ug/kg	75		54-132		
2-Chlorotoluene	1	U	1.	ug/kg	92		78-120		
4-Chlorotoluene	1	U	1.	ug/kg	92		79-120		
Cyclohexane	1	U	1.	ug/kg	87		62-121		
1,2-Dibromo-3-chloropropane	2	U	2.	ug/kg	65		58-120		
Dibromochloromethane	1	U	1.	ug/kg	83		77-120		
1,2-Dibromoethane	1	U	1.	ug/kg	85		80-120		
Dibromomethane	1	U	1.	ug/kg	86		80-120		
1,2-Dichlorobenzene	1	U	1.	ug/kg	90		79-120		
1,3-Dichlorobenzene	1	U	1.	ug/kg	90		78-120		
1,4-Dichlorobenzene	1	U	1.	ug/kg	91		79-120		
Dichlorodifluoromethane	2	U	2.	ug/kg	68		20-120		
1,1-Dichloroethane	1	U	1.	ug/kg	93		80-120		
1,2-Dichloroethane	1	U	1.	ug/kg	90		71-129		
1,1-Dichloroethene	1	U	1.	ug/kg	91		73-123		
cis-1,2-Dichloroethene	1	U	1.	ug/kg	94		80-120		
trans-1,2-Dichloroethene	1	U	1.	ug/kg	92		79-120		
1,2-Dichloropropane	1	U	1.	ug/kg	92		80-120		
1,3-Dichloropropane	1	U	1.	ug/kg	86		80-120		
2,2-Dichloropropane	1	U	1.	ug/kg	85		72-123		
1,1-Dichloropropene	1	U	1.	ug/kg	90		77-120		
cis-1,3-Dichloropropene	1	U	1.	ug/kg	86		80-120		
trans-1,3-Dichloropropene	1	U	1.	ug/kg	83		77-120		
Ethylbenzene	1	U	1.	ug/kg	94		80-120		
Freon 113	2	U	2.	ug/kg	87		61-126		
Hexachlorobutadiene	2	U	2.	ug/kg	88		57-120		
2-Hexanone	3	U	3.	ug/kg	50		45-155		
Isopropylbenzene	1	U	1.	ug/kg	94		76-120		
p-Isopropyltoluene	1	U	1.	ug/kg	94		75-120		
Methyl Acetate	2	U	2.	ug/kg	87		61-152		
Methyl Tertiary Butyl Ether	0.5	U	0.5	ug/kg	86		74-121		
4-Methyl-2-pentanone	3	U	3.	ug/kg	60*		61-134		
Methylcyclohexane	1	U	1.	ug/kg	91		57-138		
Methylene Chloride	2	U	2.	ug/kg	92		76-124		
Naphthalene	1	U	1.	ug/kg	78		59-123		
n-Propylbenzene	1	U	1.	ug/kg	94		77-120		
Styrene	1	U	1.	ug/kg	93		76-120		
1,1,1,2-Tetrachloroethane	1	U	1.	ug/kg	89		80-120		
1,1,2,2-Tetrachloroethane	1	U	1.	ug/kg	75		71-123		
Tetrachloroethene	1	U	1.	ug/kg	92		77-120		
Toluene	1	U	1.	ug/kg	94		80-120		
1,2,3-Trichlorobenzene	1	U	1.	ug/kg	89		64-120		
1,2,4-Trichlorobenzene	1	U	1.	ug/kg	90		68-120		
1,1,1-Trichloroethane	1	U	1.	ug/kg	89		71-125		
1,1,2-Trichloroethane	1	U	1.	ug/kg	85		80-120		

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1281468
Reported: 01/05/12 at 10:25 AM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Trichloroethene	1	U	1.	ug/kg	93		80-120		
Trichlorofluoromethane	2	U	2.	ug/kg	85		58-133		
1,2,3-Trichloropropane	1	U	1.	ug/kg	73		71-123		
1,2,4-Trimethylbenzene	1	U	1.	ug/kg	94		79-120		
1,3,5-Trimethylbenzene	1	U	1.	ug/kg	94		78-120		
Vinyl Acetate	2	U	2.	ug/kg	90		56-137		
Vinyl Chloride	1	U	1.	ug/kg	80		53-120		
m+p-Xylene	1	U	1.	ug/kg	94		80-120		
o-Xylene	1	U	1.	ug/kg	94		80-120		
Batch number: R113631AA	Sample number(s): 6502122,6502129,6502137								
Acetone	350	U	350.	ug/kg	69	67	32-209	3	30
Benzene	25	U	25.	ug/kg	105	103	80-120	2	30
Bromobenzene	50	U	50.	ug/kg	103	101	79-120	2	30
Bromochloromethane	50	U	50.	ug/kg	112	107	79-124	4	30
Bromodichloromethane	50	U	50.	ug/kg	94	91	78-120	3	30
Bromoform	50	U	50.	ug/kg	83	82	70-120	1	30
Bromomethane	100	U	100.	ug/kg	83	78	32-162	7	30
2-Butanone	200	U	200.	ug/kg	75	71	46-153	5	30
n-Butylbenzene	50	U	50.	ug/kg	96	89	72-120	8	30
sec-Butylbenzene	50	U	50.	ug/kg	95	90	75-120	6	30
tert-Butylbenzene	50	U	50.	ug/kg	95	92	75-120	3	30
Carbon Disulfide	50	U	50.	ug/kg	107	102	67-122	4	30
Carbon Tetrachloride	50	U	50.	ug/kg	91	89	69-122	2	30
Chlorobenzene	50	U	50.	ug/kg	96	96	80-120	0	30
Chloroethane	100	U	100.	ug/kg	94	86	37-154	9	30
Chloroform	50	U	50.	ug/kg	98	98	80-120	0	30
Chloromethane	100	U	100.	ug/kg	80	80	54-132	0	30
2-Chlorotoluene	50	U	50.	ug/kg	98	96	78-120	2	30
4-Chlorotoluene	50	U	50.	ug/kg	99	98	79-120	2	30
Cyclohexane	50	U	50.	ug/kg	96	92	62-121	4	30
1,2-Dibromo-3-chloropropane	100	U	100.	ug/kg	71	68	58-120	6	30
Dibromochloromethane	50	U	50.	ug/kg	93	91	77-120	2	30
1,2-Dibromoethane	50	U	50.	ug/kg	96	96	80-120	0	30
Dibromomethane	50	U	50.	ug/kg	100	98	80-120	2	30
1,2-Dichlorobenzene	50	U	50.	ug/kg	97	93	79-120	4	30
1,3-Dichlorobenzene	50	U	50.	ug/kg	97	94	78-120	3	30
1,4-Dichlorobenzene	50	U	50.	ug/kg	96	94	79-120	2	30
Dichlorodifluoromethane	100	U	100.	ug/kg	66	61	20-120	8	30
1,1-Dichloroethane	50	U	50.	ug/kg	105	105	80-120	1	30
1,2-Dichloroethane	50	U	50.	ug/kg	95	94	71-129	1	30
1,1-Dichloroethene	50	U	50.	ug/kg	111	107	73-123	3	30
cis-1,2-Dichloroethene	50	U	50.	ug/kg	105	103	80-120	2	30
trans-1,2-Dichloroethene	50	U	50.	ug/kg	106	106	79-120	0	30
1,2-Dichloropropane	50	U	50.	ug/kg	105	102	80-120	3	30
1,3-Dichloropropane	50	U	50.	ug/kg	97	98	80-120	1	30
2,2-Dichloropropane	50	U	50.	ug/kg	95	95	72-123	0	30
1,1-Dichloropropene	50	U	50.	ug/kg	97	94	77-120	3	30
cis-1,3-Dichloropropene	50	U	50.	ug/kg	98	96	80-120	2	30
trans-1,3-Dichloropropene	50	U	50.	ug/kg	95	93	77-120	2	30
Ethylbenzene	50	U	50.	ug/kg	88	88	80-120	0	30
Freon 113	100	U	100.	ug/kg	112	105	61-126	7	30
Hexachlorobutadiene	100	U	100.	ug/kg	79	72	57-120	10	30
2-Hexanone	150	U	150.	ug/kg	71	70	45-155	2	30
Isopropylbenzene	50	U	50.	ug/kg	82	81	76-120	0	30
p-Isopropyltoluene	50	U	50.	ug/kg	94	89	75-120	5	30
Methyl Acetate	100	U	100.	ug/kg	114	114	61-152	0	30
Methyl Tertiary Butyl Ether	25	U	25.	ug/kg	104	102	74-121	2	30

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1281468
Reported: 01/05/12 at 10:25 AM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
4-Methyl-2-pentanone	150	U	150.	ug/kg	88	87	61-134	1	30
Methylcyclohexane	50	U	50.	ug/kg	97	90	57-138	8	30
Methylene Chloride	100	U	100.	ug/kg	110	109	76-124	1	30
Naphthalene	50	U	50.	ug/kg	69	62	59-123	11	30
n-Propylbenzene	50	U	50.	ug/kg	97	93	77-120	4	30
Styrene	50	U	50.	ug/kg	89	89	76-120	0	30
1,1,1,2-Tetrachloroethane	50	U	50.	ug/kg	91	91	80-120	1	30
1,1,2,2-Tetrachloroethane	50	U	50.	ug/kg	100	96	71-123	4	30
Tetrachloroethene	50	U	50.	ug/kg	90	89	77-120	2	30
Toluene	50	U	50.	ug/kg	96	97	80-120	1	30
1,2,3-Trichlorobenzene	50	U	50.	ug/kg	73	58*	64-120	22	30
1,2,4-Trichlorobenzene	50	U	50.	ug/kg	85	73	68-120	15	30
1,1,1-Trichloroethane	50	U	50.	ug/kg	96	94	71-125	1	30
1,1,2-Trichloroethane	50	U	50.	ug/kg	99	97	80-120	2	30
Trichloroethene	50	U	50.	ug/kg	98	96	80-120	1	30
Trichlorofluoromethane	100	U	100.	ug/kg	78	76	58-133	2	30
1,2,3-Trichloropropane	50	U	50.	ug/kg	97	95	71-123	2	30
1,2,4-Trimethylbenzene	50	U	50.	ug/kg	93	90	79-120	3	30
1,3,5-Trimethylbenzene	50	U	50.	ug/kg	93	90	78-120	3	30
Vinyl Acetate	100	U	100.	ug/kg	105	104	56-137	0	30
Vinyl Chloride	50	U	50.	ug/kg	83	81	53-120	3	30
m+p-Xylene	50	U	50.	ug/kg	90	90	80-120	0	30
o-Xylene	50	U	50.	ug/kg	90	91	80-120	0	30

Batch number: Y113621AA Sample number(s): 6502141

Acetone	6	U	6.	ug/l	83	49-234
Benzene	0.5	U	0.5	ug/l	111	79-120
Bromobenzene	1	U	1.	ug/l	109	80-120
Bromochloromethane	1	U	1.	ug/l	107	80-120
Bromodichloromethane	1	U	1.	ug/l	100	80-120
Bromoform	1	U	1.	ug/l	93	61-120
Bromomethane	1	U	1.	ug/l	95	44-120
2-Butanone	3	U	3.	ug/l	110	66-151
n-Butylbenzene	1	U	1.	ug/l	110	74-120
sec-Butylbenzene	1	U	1.	ug/l	114	78-120
tert-Butylbenzene	1	U	1.	ug/l	108	80-120
Carbon Disulfide	1	U	1.	ug/l	98	62-120
Carbon Tetrachloride	1	U	1.	ug/l	103	75-123
Chlorobenzene	0.8	U	0.8	ug/l	108	80-120
Chloroethane	1	U	1.	ug/l	85	49-129
Chloroform	0.8	U	0.8	ug/l	109	77-122
Chloromethane	1	U	1.	ug/l	96	60-129
2-Chlorotoluene	1	U	1.	ug/l	109	80-120
4-Chlorotoluene	1	U	1.	ug/l	107	80-120
Cyclohexane	2	U	2.	ug/l	110	65-125
1,2-Dibromo-3-chloropropane	2	U	2.	ug/l	104	56-126
Dibromochloromethane	1	U	1.	ug/l	98	80-120
1,2-Dibromoethane	1	U	1.	ug/l	106	80-120
Dibromomethane	1	U	1.	ug/l	108	80-120
1,2-Dichlorobenzene	1	U	1.	ug/l	109	80-120
1,3-Dichlorobenzene	1	U	1.	ug/l	110	80-120
1,4-Dichlorobenzene	1	U	1.	ug/l	108	80-120
Dichlorodifluoromethane	2	U	2.	ug/l	86	47-120
1,1-Dichloroethane	1	U	1.	ug/l	109	79-120
1,2-Dichloroethane	1	U	1.	ug/l	109	70-130
1,1-Dichloroethene	0.8	U	0.8	ug/l	108	74-123
cis-1,2-Dichloroethene	0.8	U	0.8	ug/l	111	80-120
trans-1,2-Dichloroethene	0.8	U	0.8	ug/l	110	80-120

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(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1281468
Reported: 01/05/12 at 10:25 AM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
1,2-Dichloropropane	1	U	1.	ug/l	106		78-120		
1,3-Dichloropropane	1	U	1.	ug/l	107		80-120		
2,2-Dichloropropane	1	U	1.	ug/l	101		77-124		
1,1-Dichloropropene	1	U	1.	ug/l	108		80-120		
cis-1,3-Dichloropropene	1	U	1.	ug/l	98		80-120		
trans-1,3-Dichloropropene	1	U	1.	ug/l	98		79-120		
Ethylbenzene	0.8	U	0.8	ug/l	108		79-120		
Freon 113	2	U	2.	ug/l	107		69-128		
Hexachlorobutadiene	2	U	2.	ug/l	102		58-120		
2-Hexanone	3	U	3.	ug/l	99		65-136		
Isopropylbenzene	1	U	1.	ug/l	109		77-120		
p-Isopropyltoluene	1	U	1.	ug/l	112		80-120		
Methyl Acetate	1	U	1.	ug/l	115		64-151		
Methyl Tertiary Butyl Ether	0.5	U	0.5	ug/l	107		76-120		
4-Methyl-2-pentanone	3	U	3.	ug/l	103		70-121		
Methylcyclohexane	1	U	1.	ug/l	107		71-132		
Methylene Chloride	2	U	2.	ug/l	112		80-120		
Naphthalene	1	U	1.	ug/l	110		62-120		
n-Propylbenzene	1	U	1.	ug/l	115		80-120		
Styrene	1	U	1.	ug/l	108		80-120		
1,1,1,2-Tetrachloroethane	1	U	1.	ug/l	102		80-120		
1,1,2,2-Tetrachloroethane	1	U	1.	ug/l	111		71-120		
Tetrachloroethene	0.8	U	0.8	ug/l	105		80-121		
Toluene	0.7	U	0.7	ug/l	108		79-120		
1,2,3-Trichlorobenzene	1	U	1.	ug/l	109		65-120		
1,2,4-Trichlorobenzene	1	U	1.	ug/l	106		67-120		
1,1,1-Trichloroethane	0.8	U	0.8	ug/l	105		75-127		
1,1,2-Trichloroethane	0.8	U	0.8	ug/l	107		80-120		
Trichloroethene	1	U	1.	ug/l	107		80-120		
Trichlorofluoromethane	2	U	2.	ug/l	103		64-129		
1,2,3-Trichloropropane	1	U	1.	ug/l	111		80-120		
1,2,4-Trimethylbenzene	1	U	1.	ug/l	113		74-120		
1,3,5-Trimethylbenzene	1	U	1.	ug/l	112		75-120		
Vinyl Acetate	2	U	2.	ug/l	113	110	57-147	2	30
Vinyl Chloride	1	U	1.	ug/l	94		65-125		
m+p-Xylene	0.8	U	0.8	ug/l	107		80-120		
o-Xylene	0.8	U	0.8	ug/l	107		80-120		
Batch number: 11354SLE026	Sample number(s): 6502117-6502131,6502133-6502137								
Acenaphthene	3	U	3.	ug/kg	98		83-111		
Acenaphthylene	3	U	3.	ug/kg	109		68-120		
Anthracene	3	U	3.	ug/kg	102		83-111		
Benzo(a)anthracene	3	U	3.	ug/kg	97		82-111		
Benzo(a)pyrene	3	U	3.	ug/kg	110		63-138		
Benzo(b)fluoranthene	3	U	3.	ug/kg	110		61-133		
Benzo(g,h,i)perylene	3	U	3.	ug/kg	99		63-130		
Benzo(k)fluoranthene	3	U	3.	ug/kg	111		71-135		
Benzyl alcohol	170	U	170.	ug/kg	92		68-111		
1,1'-Biphenyl	17	U	17.	ug/kg	97		82-106		
4-Bromophenyl-phenylether	17	U	17.	ug/kg	106		79-117		
Butylbenzylphthalate	67	U	67.	ug/kg	99		77-125		
Di-n-butylphthalate	67	U	67.	ug/kg	99		79-112		
Carbazole	17	U	17.	ug/kg	98		83-111		
4-Chloro-3-methylphenol	17	U	17.	ug/kg	91		74-119		
4-Chloroaniline	17	U	17.	ug/kg	61		10-97		
bis(2-Chloroethoxy)methane	17	U	17.	ug/kg	91		82-113		
bis(2-Chloroethyl)ether	17	U	17.	ug/kg	86		77-115		
2-Chloronaphthalene	7	U	7.	ug/kg	115		50-117		

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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1281468
Reported: 01/05/12 at 10:25 AM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
2-Chlorophenol	17	U	17.	ug/kg	94		83-119		
4-Chlorophenyl-phenylether	17	U	17.	ug/kg	104		79-110		
Chrysene	3	U	3.	ug/kg	96		81-111		
Dibenz(a,h)anthracene	3	U	3.	ug/kg	102		67-129		
Dibenzofuran	17	U	17.	ug/kg	95		85-110		
3,3'-Dichlorobenzidine	100	U	100.	ug/kg	69		17-116		
2,4-Dichlorophenol	17	U	17.	ug/kg	101		87-117		
Diethylphthalate	67	U	67.	ug/kg	101		82-113		
2,4-Dimethylphenol	17	U	17.	ug/kg	94		83-120		
Dimethylphthalate	67	U	67.	ug/kg	102		85-111		
4,6-Dinitro-2-methylphenol	170	U	170.	ug/kg	96		60-113		
2,4-Dinitrophenol	330	U	330.	ug/kg	82		39-126		
2,4-Dinitrotoluene	67	U	67.	ug/kg	106		80-116		
2,6-Dinitrotoluene	17	U	17.	ug/kg	107		79-115		
1,4-Dioxane	100	U	100.	ug/kg	42		38-75		
bis(2-Ethylhexyl)phthalate	67	U	67.	ug/kg	98		75-124		
Fluoranthene	3	U	3.	ug/kg	104		80-113		
Fluorene	3	U	3.	ug/kg	100		81-117		
Hexachlorobenzene	3	U	3.	ug/kg	108		79-115		
Hexachlorocyclopentadiene	170	U	170.	ug/kg	110		64-127		
Hexachloroethane	33	U	33.	ug/kg	85		76-109		
Indeno(1,2,3-cd)pyrene	3	U	3.	ug/kg	102		64-128		
Isophorone	17	U	17.	ug/kg	88		72-107		
2-Methylnaphthalene	3	U	3.	ug/kg	95		79-110		
2-Methylphenol	17	U	17.	ug/kg	89		80-119		
4-Methylphenol	17	U	17.	ug/kg	81		74-116		
2-Nitroaniline	17	U	17.	ug/kg	104		83-118		
3-Nitroaniline	67	U	67.	ug/kg	100		66-114		
4-Nitroaniline	67	U	67.	ug/kg	79		52-92		
Nitrobenzene	17	U	17.	ug/kg	91		78-122		
2-Nitrophenol	17	U	17.	ug/kg	100		81-114		
4-Nitrophenol	170	U	170.	ug/kg	81		57-131		
N-Nitroso-di-n-propylamine	17	U	17.	ug/kg	77		70-113		
N-Nitrosodiphenylamine	17	U	17.	ug/kg	103		86-112		
Di-n-octylphthalate	67	U	67.	ug/kg	113		65-141		
Pentachlorophenol	33	U	33.	ug/kg	92		50-133		
Phenanthrene	3	U	3.	ug/kg	97		83-109		
Phenol	17	U	17.	ug/kg	80		74-115		
Pyrene	3	U	3.	ug/kg	96		80-121		
2,4,5-Trichlorophenol	17	U	17.	ug/kg	107		84-109		
2,4,6-Trichlorophenol	17	U	17.	ug/kg	107		88-114		
Batch number: 11354SLF026	Sample number(s): 6502138-6502140								
Acenaphthene	3	U	3.	ug/kg	105		83-111		
Acenaphthylene	3	U	3.	ug/kg	114		68-120		
Anthracene	3	U	3.	ug/kg	107		83-111		
Benzo(a)anthracene	3	U	3.	ug/kg	116*		82-111		
Benzo(a)pyrene	3	U	3.	ug/kg	110		63-138		
Benzo(b)fluoranthene	3	U	3.	ug/kg	116		61-133		
Benzo(g,h,i)perylene	3	U	3.	ug/kg	102		63-130		
Benzo(k)fluoranthene	3	U	3.	ug/kg	109		71-135		
Benzyl alcohol	170	U	170.	ug/kg	111		68-111		
1,1'-Biphenyl	17	U	17.	ug/kg	101		82-106		
4-Bromophenyl-phenylether	17	U	17.	ug/kg	105		79-117		
Butylbenzylphthalate	67	U	67.	ug/kg	108		77-125		
Di-n-butylphthalate	67	U	67.	ug/kg	101		79-112		
Carbazole	17	U	17.	ug/kg	102		83-111		
4-Chloro-3-methylphenol	17	U	17.	ug/kg	107		74-119		

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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1281468
Reported: 01/05/12 at 10:25 AM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
4-Chloroaniline	17	U	17.	ug/kg	106*		10-97		
bis(2-Chloroethoxy)methane	17	U	17.	ug/kg	107		82-113		
bis(2-Chloroethyl)ether	17	U	17.	ug/kg	105		77-115		
2-Chloronaphthalene	7	U	7.	ug/kg	120*		50-117		
2-Chlorophenol	17	U	17.	ug/kg	108		83-119		
4-Chlorophenyl-phenylether	17	U	17.	ug/kg	104		79-110		
Chrysene	3	U	3.	ug/kg	109		81-111		
Dibenz(a,h)anthracene	3	U	3.	ug/kg	105		67-129		
Dibenzofuran	17	U	17.	ug/kg	101		85-110		
3,3'-Dichlorobenzidine	100	U	100.	ug/kg	90		17-116		
2,4-Dichlorophenol	17	U	17.	ug/kg	107		87-117		
Diethylphthalate	67	U	67.	ug/kg	102		82-113		
2,4-Dimethylphenol	17	U	17.	ug/kg	111		83-120		
Dimethylphthalate	67	U	67.	ug/kg	102		85-111		
4,6-Dinitro-2-methylphenol	170	U	170.	ug/kg	96		60-113		
2,4-Dinitrophenol	330	U	330.	ug/kg	76		39-126		
2,4-Dinitrotoluene	67	U	67.	ug/kg	106		80-116		
2,6-Dinitrotoluene	17	U	17.	ug/kg	107		79-115		
1,4-Dioxane	100	U	100.	ug/kg	56		38-75		
bis(2-Ethylhexyl)phthalate	67	U	67.	ug/kg	105		75-124		
Fluoranthene	3	U	3.	ug/kg	105		80-113		
Fluorene	3	U	3.	ug/kg	105		81-117		
Hexachlorobenzene	3	U	3.	ug/kg	106		79-115		
Hexachlorocyclopentadiene	170	U	170.	ug/kg	104		64-127		
Hexachloroethane	33	U	33.	ug/kg	97		76-109		
Indeno(1,2,3-cd)pyrene	3	U	3.	ug/kg	103		64-128		
Isophorone	17	U	17.	ug/kg	108*		72-107		
2-Methylnaphthalene	3	U	3.	ug/kg	103		79-110		
2-Methylphenol	17	U	17.	ug/kg	108		80-119		
4-Methylphenol	17	U	17.	ug/kg	116		74-116		
2-Nitroaniline	17	U	17.	ug/kg	105		83-118		
3-Nitroaniline	67	U	67.	ug/kg	103		66-114		
4-Nitroaniline	67	U	67.	ug/kg	90		52-92		
Nitrobenzene	17	U	17.	ug/kg	108		78-122		
2-Nitrophenol	17	U	17.	ug/kg	108		81-114		
4-Nitrophenol	170	U	170.	ug/kg	96		57-131		
N-Nitroso-di-n-propylamine	17	U	17.	ug/kg	104		70-113		
N-Nitrosodiphenylamine	17	U	17.	ug/kg	108		86-112		
Di-n-octylphthalate	67	U	67.	ug/kg	112		65-141		
Pentachlorophenol	33	U	33.	ug/kg	112		50-133		
Phenanthrene	3	U	3.	ug/kg	102		83-109		
Phenol	17	U	17.	ug/kg	107		74-115		
Pyrene	3	U	3.	ug/kg	111		80-121		
2,4,5-Trichlorophenol	17	U	17.	ug/kg	109		84-109		
2,4,6-Trichlorophenol	17	U	17.	ug/kg	108		88-114		
Batch number: 11354WAB026	Sample number(s): 6502132								
Acenaphthene	0.1	U	0.1	ug/l	107		75-114		
Acenaphthylene	0.1	U	0.1	ug/l	115		80-122		
Anthracene	0.1	U	0.1	ug/l	111		76-115		
Benzo(a)anthracene	0.1	U	0.1	ug/l	116		75-116		
Benzo(a)pyrene	0.1	U	0.1	ug/l	114		64-126		
Benzo(b)fluoranthene	0.1	U	0.1	ug/l	108		66-125		
Benzo(g,h,i)perylene	0.1	U	0.1	ug/l	110		66-132		
Benzo(k)fluoranthene	0.1	U	0.1	ug/l	110		66-131		
Benzyl alcohol	5	U	5.	ug/l	85		66-97		
1,1'-Biphenyl	0.5	U	0.5	ug/l	99		80-109		
4-Bromophenyl-phenylether	0.5	U	0.5	ug/l	110		75-115		

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(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1281468
Reported: 01/05/12 at 10:25 AM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Butylbenzylphthalate	2	U	2.	ug/l	107		77-115		
Di-n-butylphthalate	2	U	2.	ug/l	107		76-115		
Carbazole	0.5	U	0.5	ug/l	105		75-120		
4-Chloro-3-methylphenol	0.5	U	0.5	ug/l	97		70-123		
4-Chloroaniline	0.5	U	0.5	ug/l	104		24-128		
bis(2-Chloroethoxy)methane	0.5	U	0.5	ug/l	105		74-124		
bis(2-Chloroethyl)ether	0.5	U	0.5	ug/l	103		77-108		
2-Chloronaphthalene	0.4	U	0.4	ug/l	113		54-132		
2-Chlorophenol	0.5	U	0.5	ug/l	94		71-114		
4-Chlorophenyl-phenylether	0.5	U	0.5	ug/l	106		77-114		
Chrysene	0.1	U	0.1	ug/l	110		76-116		
Dibenz(a,h)anthracene	0.1	U	0.1	ug/l	113		67-131		
Dibenzofuran	0.5	U	0.5	ug/l	104		75-117		
3,3'-Dichlorobenzidine	2	U	2.	ug/l	86		37-117		
2,4-Dichlorophenol	0.5	U	0.5	ug/l	104		77-117		
Diethylphthalate	2	U	2.	ug/l	102		66-116		
2,4-Dimethylphenol	0.5	U	0.5	ug/l	102		72-110		
Dimethylphthalate	2	U	2.	ug/l	76		39-126		
4,6-Dinitro-2-methylphenol	5	U	5.	ug/l	103		65-126		
2,4-Dinitrophenol	10	U	10.	ug/l	90		52-131		
2,4-Dinitrotoluene	1	U	1.	ug/l	108		76-119		
2,6-Dinitrotoluene	0.5	U	0.5	ug/l	112		76-118		
1,4-Dioxane	1	U	1.	ug/l	57		32-78		
bis(2-Ethylhexyl)phthalate	2	U	2.	ug/l	108		78-117		
Fluoranthene	0.1	U	0.1	ug/l	111		76-119		
Fluorene	0.1	U	0.1	ug/l	111		76-116		
Hexachlorobenzene	0.1	U	0.1	ug/l	107		75-119		
Hexachlorocyclopentadiene	5	U	5.	ug/l	79		36-118		
Hexachloroethane	1	U	1.	ug/l	80		52-113		
Indeno(1,2,3-cd)pyrene	0.1	U	0.1	ug/l	111		69-121		
Isophorone	0.5	U	0.5	ug/l	109		74-117		
2-Methylnaphthalene	0.1	U	0.1	ug/l	101		69-108		
2-Methylphenol	0.5	U	0.5	ug/l	80		58-110		
4-Methylphenol	0.5	U	0.5	ug/l	71		49-108		
2-Nitroaniline	0.5	U	0.5	ug/l	106		75-120		
3-Nitroaniline	0.5	U	0.5	ug/l	106		74-113		
4-Nitroaniline	0.5	U	0.5	ug/l	90		59-100		
Nitrobenzene	0.5	U	0.5	ug/l	105		75-109		
2-Nitrophenol	0.5	U	0.5	ug/l	103		76-118		
4-Nitrophenol	10	U	10.	ug/l	40		16-78		
N-Nitroso-di-n-propylamine	0.5	U	0.5	ug/l	104		69-110		
N-Nitrosodiphenylamine	0.5	U	0.5	ug/l	104		67-136		
Di-n-octylphthalate	2	U	2.	ug/l	114		68-128		
Pentachlorophenol	1	U	1.	ug/l	122*		53-110		
Phenanthrene	0.1	U	0.1	ug/l	105		76-113		
Phenol	0.5	U	0.5	ug/l	35		21-67		
Pyrene	0.1	U	0.1	ug/l	111		75-119		
2,4,5-Trichlorophenol	0.5	U	0.5	ug/l	110*		79-107		
2,4,6-Trichlorophenol	0.5	U	0.5	ug/l	108		76-120		
Batch number: 113531026002A	Sample number(s): 6502117-6502131,6502133-6502137								
Arsenic	0.0792	U	0.0792	mg/kg	85		83-111		
Batch number: 113535708001	Sample number(s): 6502117-6502131,6502133-6502137								
Cadmium	0.0200	U	0.0200	mg/kg	94		88-117		
Chromium	0.140	U	0.140	mg/kg	92		80-111		
Lead	0.220	U	0.220	mg/kg	90		90-115		
Selenium	0.680	U	0.680	mg/kg	93		83-111		

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(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1281468
Reported: 01/05/12 at 10:25 AM

Analysis Name	Blank Result	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Silver	0.0830 U	0.0830	mg/kg	92		86-112		
Batch number: 113535711001	Sample number(s): 6502117-6502131,6502133-6502137							
Mercury	0.0070 U	0.0070	mg/kg	88		83-119		
Batch number: 113545708002	Sample number(s): 6502138-6502140							
Barium	0.0180 U	0.0180	mg/kg	99		89-112		
Cadmium	0.0200 U	0.0200	mg/kg	97		88-117		
Chromium	0.140 U	0.140	mg/kg	102		80-111		
Lead	0.220 U	0.220	mg/kg	96		90-115		
Selenium	0.680 U	0.680	mg/kg	99		83-111		
Silver	0.0830 U	0.0830	mg/kg	99		86-112		
Batch number: 113545711003	Sample number(s): 6502138-6502140							
Mercury	0.0070 U	0.0070	mg/kg	102		83-119		
Batch number: 113546050004A	Sample number(s): 6502132							
Arsenic	0.00095 U	0.00095	mg/l	103		86-111		
Batch number: 113565713002	Sample number(s): 6502132							
Mercury	0.000026 U	0.00002 6	mg/l	92		80-120		
Batch number: 113571026001A	Sample number(s): 6502138-6502140							
Arsenic	0.0792 U	0.0792	mg/kg	94		83-111		
Batch number: 113575705002	Sample number(s): 6502132							
Barium	0.00026 U	0.00026	mg/l	102		90-110		
Cadmium	0.00027 U	0.00027	mg/l	105		90-112		
Chromium	0.0011 U	0.0011	mg/l	102		90-110		
Lead	0.0022 U	0.0022	mg/l	102		88-110		
Selenium	0.0069 U	0.0069	mg/l	103		80-120		
Silver	0.00091 U	0.00091	mg/l	104		83-120		
Batch number: 120045708004	Sample number(s): 6502117-6502131,6502133-6502137							
Barium	0.0180 U	0.0180	mg/kg	98		89-112		
Batch number: 11354820003A	Sample number(s): 6502117-6502126							
Moisture				100		99-101		
Batch number: 11354820003B	Sample number(s): 6502127-6502131,6502133-6502137							
Moisture				100		99-101		
Batch number: 11354820005A	Sample number(s): 6502138-6502140							
Moisture				100		99-101		

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: A113611AA	Sample number(s): 6502119,6502123-6502128,6502130 UNSPK: P500824 BKG: P501064								

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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1281468
Reported: 01/05/12 at 10:25 AM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc		DUP Conc		DUP RPD	Dup RPD Max
Acetone	138		31-195			35		38		9 (1)	30
Benzene	94		55-143			0.5	U	0.5	U	0 (1)	30
Bromobenzene	87		43-139								
Bromochloromethane	91		60-137								
Bromodichloromethane	91		53-136			1	U	0.9	U	0 (1)	30
Bromoform	94		38-124			1	U	0.9	U	0 (1)	30
Bromomethane	100		42-168			2	U	2	U	0 (1)	30
2-Butanone	143		37-163			4	J	4	U	200* (1)	30
n-Butylbenzene	83		30-146								
sec-Butylbenzene	91		33-157								
tert-Butylbenzene	90		41-152								
Carbon Disulfide	88		48-146			1	J	1	J	18 (1)	30
Carbon Tetrachloride	101		45-153			1	U	0.9	U	0 (1)	30
Chlorobenzene	89		49-135			1	U	0.9	U	0 (1)	30
Chloroethane	89		39-152			2	U	2	U	0 (1)	30
Chloroform	98		61-142			1	U	0.9	U	0 (1)	30
Chloromethane	85		51-163			2	U	2	U	0 (1)	30
2-Chlorotoluene	85		42-146								
4-Chlorotoluene	84		39-145								
Cyclohexane	101		57-151								
1,2-Dibromo-3-chloropropane	117		30-139			2	U	2	U	0 (1)	30
Dibromochloromethane	94		51-128			1	U	0.9	U	0 (1)	30
1,2-Dibromoethane	101		54-129			1	U	0.9	U	0 (1)	30
Dibromomethane	93		57-130			1	U	0.9	U	0 (1)	30
1,2-Dichlorobenzene	81		36-133			1	U	0.9	U	0 (1)	30
1,3-Dichlorobenzene	81		34-134			1	U	0.9	U	0 (1)	30
1,4-Dichlorobenzene	79		35-136			1	U	0.9	U	0 (1)	30
Dichlorodifluoromethane	98		26-151			2	U	2	U	0 (1)	30
1,1-Dichloroethane	100		63-142			1	U	0.9	U	0 (1)	30
1,2-Dichloroethane	117		68-131			1	U	0.9	U	0 (1)	30
1,1-Dichloroethene	96		61-149			1	U	0.9	U	0 (1)	30
cis-1,2-Dichloroethene	90		60-136			1	U	0.9	U	0 (1)	30
trans-1,2-Dichloroethene	93		59-142			1	U	0.9	U	0 (1)	30
1,2-Dichloropropane	90		62-135			1	U	0.9	U	0 (1)	30
1,3-Dichloropropane	100		58-129								
2,2-Dichloropropane	102		53-147								
1,1-Dichloropropene	99		54-145								
cis-1,3-Dichloropropene	85		51-131			1	U	0.9	U	0 (1)	30
trans-1,3-Dichloropropene	92		49-129			1	U	0.9	U	0 (1)	30
Ethylbenzene	94		44-141			1	U	0.9	U	0 (1)	30
Freon 113	104		56-156								
Hexachlorobutadiene	81		10-155								
2-Hexanone	123		32-160			3	U	3	U	0 (1)	30
Isopropylbenzene	94		38-144								
p-Isopropyltoluene	87		29-152								
Methyl Acetate	148		48-161								
Methyl Tertiary Butyl Ether	104		55-129								
4-Methyl-2-pentanone	134		46-139			3	U	3	U	0 (1)	30
Methylcyclohexane	99		39-168								
Methylene Chloride	88		61-141			2	U	2	U	0 (1)	30
Naphthalene	81		10-138								
n-Propylbenzene	91		39-157								
Styrene	90		35-134			1	U	0.9	U	0 (1)	30

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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1281468
Reported: 01/05/12 at 10:25 AM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc		DUP Conc		DUP RPD	Dup RPD Max
1,1,1,2-Tetrachloroethane	93		52-130			1	U	0.9	U	0 (1)	30
1,1,2,2-Tetrachloroethane	100		40-152			1	U	0.9	U	0 (1)	30
Tetrachloroethene	98		42-149			1	U	0.9	U	0 (1)	30
Toluene	94		50-146			1	U	0.9	U	0 (1)	30
1,2,3-Trichlorobenzene	74		10-140								
1,2,4-Trichlorobenzene	68		10-136								
1,1,1-Trichloroethane	97		64-142			1	U	0.9	U	0 (1)	30
1,1,2-Trichloroethane	97		54-139			1	U	0.9	U	0 (1)	30
Trichloroethene	91		53-144			1	U	0.9	U	0 (1)	30
Trichlorofluoromethane	113		47-163			2	U	2	U	0 (1)	30
1,2,3-Trichloropropane	113		45-154			1	U	0.9	U	0 (1)	30
1,2,4-Trimethylbenzene	86		37-149								
1,3,5-Trimethylbenzene	89		38-150								
Vinyl Acetate						2	U	2	U	0 (1)	30
Vinyl Chloride	83		50-154			1	U	0.9	U	0 (1)	30
m+p-Xylene	89		44-137			1	U	0.9	U	0 (1)	30
o-Xylene	87		42-137			1	U	0.9	U	0 (1)	30
Batch number: A113622AA	Sample number(s): 6502131,6502133-6502136,6502138-6502140					BKG: P505018					
Acetone						17	J	14	J	21 (1)	30
Benzene						0.5	U	0.5	U	0 (1)	30
Bromobenzene						1	U	0.9	U	0 (1)	30
Bromochloromethane						1	U	0.9	U	0 (1)	30
Bromodichloromethane						1	U	0.9	U	0 (1)	30
Bromoform						1	U	0.9	U	0 (1)	30
Bromomethane						2	U	2	U	0 (1)	30
2-Butanone						4	U	4	U	0 (1)	30
n-Butylbenzene						1	U	0.9	U	0 (1)	30
sec-Butylbenzene						1	U	0.9	U	0 (1)	30
tert-Butylbenzene						1	U	0.9	U	0 (1)	30
Carbon Disulfide						1	U	0.9	U	0 (1)	30
Carbon Tetrachloride						1	U	0.9	U	0 (1)	30
Chlorobenzene						1	U	0.9	U	0 (1)	30
Chloroethane						2	U	2	U	0 (1)	30
Chloroform						1	U	0.9	U	0 (1)	30
Chloromethane						2	U	2	U	0 (1)	30
2-Chlorotoluene						1	U	0.9	U	0 (1)	30
4-Chlorotoluene						1	U	0.9	U	0 (1)	30
1,2-Dibromo-3-chloropropane						2	U	2	U	0 (1)	30
Dibromochloromethane						1	U	0.9	U	0 (1)	30
1,2-Dibromoethane						1	U	0.9	U	0 (1)	30
Dibromomethane						1	U	0.9	U	0 (1)	30
1,2-Dichlorobenzene						1	U	0.9	U	0 (1)	30
1,3-Dichlorobenzene						1	U	0.9	U	0 (1)	30
1,4-Dichlorobenzene						1	U	0.9	U	0 (1)	30
Dichlorodifluoromethane						2	U	2	U	0 (1)	30
1,1-Dichloroethane						1	U	0.9	U	0 (1)	30
1,2-Dichloroethane						1	U	0.9	U	0 (1)	30
1,1-Dichloroethene						1	U	0.9	U	0 (1)	30
cis-1,2-Dichloroethene						1	U	0.9	U	0 (1)	30
trans-1,2-Dichloroethene						1	U	0.9	U	0 (1)	30
1,2-Dichloropropane						1	U	0.9	U	0 (1)	30
1,3-Dichloropropane						1	U	0.9	U	0 (1)	30

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1281468
Reported: 01/05/12 at 10:25 AM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc		DUP Conc		DUP RPD	Dup RPD Max
2,2-Dichloropropane						1	U	0.9	U	0 (1)	30
1,1-Dichloropropene						1	U	0.9	U	0 (1)	30
cis-1,3-Dichloropropene						1	U	0.9	U	0 (1)	30
trans-1,3-Dichloropropene						1	U	0.9	U	0 (1)	30
Ethylbenzene						1	U	0.9	U	0 (1)	30
Hexachlorobutadiene						2	U	2	U	0 (1)	30
2-Hexanone						3	U	3	U	0 (1)	30
Isopropylbenzene						1	U	0.9	U	0 (1)	30
p-Isopropyltoluene						1	U	0.9	U	0 (1)	30
Methyl Tertiary Butyl Ether						0.5	U	0.5	U	0 (1)	30
4-Methyl-2-pentanone						3	U	3	U	0 (1)	30
Methylene Chloride						2	U	2	U	0 (1)	30
Naphthalene						1	U	0.9	U	0 (1)	30
n-Propylbenzene						1	U	0.9	U	0 (1)	30
Styrene						1	U	0.9	U	0 (1)	30
1,1,1,2-Tetrachloroethane						1	U	0.9	U	0 (1)	30
1,1,2,2-Tetrachloroethane						1	U	0.9	U	0 (1)	30
Tetrachloroethene						1	U	0.9	U	0 (1)	30
Toluene						1	U	0.9	U	0 (1)	30
1,2,3-Trichlorobenzene						1	U	0.9	U	0 (1)	30
1,2,4-Trichlorobenzene						1	U	0.9	U	0 (1)	30
1,1,1-Trichloroethane						1	U	0.9	U	0 (1)	30
1,1,2-Trichloroethane						1	U	0.9	U	0 (1)	30
Trichloroethene						1	U	0.9	U	0 (1)	30
Trichlorofluoromethane						2	U	2	U	0 (1)	30
1,2,3-Trichloropropane						1	U	0.9	U	0 (1)	30
1,2,4-Trimethylbenzene						1	U	0.9	U	0 (1)	30
1,3,5-Trimethylbenzene						1	U	0.9	U	0 (1)	30
Vinyl Acetate						2	U	2	U	0 (1)	30
Vinyl Chloride						1	U	0.9	U	0 (1)	30
m+p-Xylene						1	U	0.9	U	0 (1)	30
o-Xylene						1	U	0.9	U	0 (1)	30
Batch number: Q113562AA	Sample number(s): 6502117-6502118,6502120-6502121 UNSPK: P500553										
Acetone	127	75	31-195	44*	30						
Benzene	74	91	55-143	9	30						
Bromobenzene	65	89	43-139	21	30						
Bromochloromethane	80	95	60-137	6	30						
Bromodichloromethane	72	89	53-136	9	30						
Bromoform	64	83	38-124	15	30						
Bromomethane	63	69	42-168	2	30						
2-Butanone	91	81	37-163	22	30						
n-Butylbenzene	62	89	30-146	26	30						
sec-Butylbenzene	66	94	33-157	25	30						
tert-Butylbenzene	65	91	41-152	23	30						
Carbon Disulfide	76	92	48-146	8	30						
Carbon Tetrachloride	70	89	45-153	13	30						
Chlorobenzene	69	89	49-135	14	30						
Chloroethane	56	69	39-152	10	30						
Chloroform	75	93	61-142	11	30						
Chloromethane	52	56	51-163	2	30						
2-Chlorotoluene	65	91	42-146	22	30						
4-Chlorotoluene	65	91	39-145	23	30						

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1281468
Reported: 01/05/12 at 10:25 AM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Cyclohexane	72	94	57-151	16	30				
1,2-Dibromo-3-chloropropane	73	95	30-139	16	30				
Dibromochloromethane	71	87	51-128	8	30				
1,2-Dibromoethane	79	96	54-129	9	30				
Dibromomethane	79	95	57-130	8	30				
1,2-Dichlorobenzene	60	87	36-133	25	30				
1,3-Dichlorobenzene	61	86	34-134	23	30				
1,4-Dichlorobenzene	59	85	35-136	25	30				
Dichlorodifluoromethane	42	46	26-151	1	30				
1,1-Dichloroethane	73	91	63-142	10	30				
1,2-Dichloroethane	82	98	68-131	7	30				
1,1-Dichloroethene	72	91	61-149	12	30				
cis-1,2-Dichloroethene	73	91	60-136	12	30				
trans-1,2-Dichloroethene	72	89	59-142	10	30				
1,2-Dichloropropane	75	90	62-135	8	30				
1,3-Dichloropropane	78	95	58-129	9	30				
2,2-Dichloropropane	67	85	53-147	12	30				
1,1-Dichloropropene	71	94	54-145	17	30				
cis-1,3-Dichloropropene	67	85	51-131	12	30				
trans-1,3-Dichloropropene	66	86	49-129	16	30				
Ethylbenzene	68	91	44-141	17	30				
Freon 113	72	92	56-156	13	30				
Hexachlorobutadiene	58	84	10-155	27	30				
2-Hexanone	68	70	32-160	9	30				
Isopropylbenzene	66	91	38-144	22	30				
p-Isopropyltoluene	64	92	29-152	25	30				
Methyl Acetate	106	108	48-161	10	30				
Methyl Tertiary Butyl Ether	86	93	55-129	3	30				
4-Methyl-2-pentanone	82	86	46-139	5	30				
Methylcyclohexane	71	92	39-168	16	30				
Methylene Chloride	80	93	61-141	4	30				
Naphthalene	49	79	10-138	36*	30				
n-Propylbenzene	68	94	39-157	22	30				
Styrene	62	86	35-134	21	30				
1,1,1,2-Tetrachloroethane	69	86	52-130	12	30				
1,1,2,2-Tetrachloroethane	82	94	40-152	3	30				
Tetrachloroethene	69	94	42-149	19	30				
Toluene	72	92	50-146	13	30				
1,2,3-Trichlorobenzene	50	76	10-140	31*	30				
1,2,4-Trichlorobenzene	51	76	10-136	28	30				
1,1,1-Trichloroethane	72	89	64-142	10	30				
1,1,2-Trichloroethane	82	94	54-139	3	30				
Trichloroethene	76	91	53-144	7	30				
Trichlorofluoromethane	67	77	47-163	3	30				
1,2,3-Trichloropropane	83	98	45-154	6	30				
1,2,4-Trimethylbenzene	66	92	37-149	21	30				
1,3,5-Trimethylbenzene	67	92	38-150	21	30				
Vinyl Acetate	106	102	21-139	20	30				
Vinyl Chloride	56	67	50-154	7	30				
m+p-Xylene	67	90	44-137	18	30				
o-Xylene	67	90	42-137	17	30				

Batch number: Y113621AA Sample number(s): 6502141 UNSPK: P502843

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1281468
Reported: 01/05/12 at 10:25 AM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Acetone	90	112	52-139	22	30				
Benzene	112	114	80-126	1	30				
Bromobenzene	108	111	82-115	2	30				
Bromochloromethane	107	107	83-123	1	30				
Bromodichloromethane	98	99	78-125	1	30				
Bromoform	83	83	60-121	0	30				
Bromomethane	99	99	38-149	0	30				
2-Butanone	103	105	57-138	2	30				
n-Butylbenzene	115	116	73-128	1	30				
sec-Butylbenzene	120	122	79-125	1	30				
tert-Butylbenzene	112	113	81-121	1	30				
Carbon Disulfide	90	91	67-135	1	30				
Carbon Tetrachloride	109	110	81-138	1	30				
Chlorobenzene	110	111	87-124	1	30				
Chloroethane	90	92	51-145	1	30				
Chloroform	111	111	81-134	0	30				
Chloromethane	107	107	67-154	0	30				
2-Chlorotoluene	113	116	82-118	3	30				
4-Chlorotoluene	109	112	84-122	2	30				
Cyclohexane	119	119	75-156	0	30				
1,2-Dibromo-3-chloropropane	98	101	54-134	3	30				
Dibromochloromethane	92	92	74-116	0	30				
1,2-Dibromoethane	105	106	77-116	1	30				
Dibromomethane	106	108	83-119	2	30				
1,2-Dichlorobenzene	108	109	84-119	1	30				
1,3-Dichlorobenzene	110	111	86-121	1	30				
1,4-Dichlorobenzene	111	111	85-121	0	30				
Dichlorodifluoromethane	100	97	52-129	3	30				
1,1-Dichloroethane	111	113	84-129	2	30				
1,2-Dichloroethane	108	108	66-141	0	30				
1,1-Dichloroethene	113	118	85-142	4	30				
cis-1,2-Dichloroethene	113	115	85-125	2	30				
trans-1,2-Dichloroethene	115	114	87-126	1	30				
1,2-Dichloropropane	108	110	83-124	2	30				
1,3-Dichloropropane	107	108	81-120	0	30				
2,2-Dichloropropane	106	108	81-135	1	30				
1,1-Dichloropropene	114	115	86-137	1	30				
cis-1,3-Dichloropropene	90	93	75-125	3	30				
trans-1,3-Dichloropropene	89	94	74-119	5	30				
Ethylbenzene	112	114	71-134	1	30				
Freon 113	118	116	89-148	1	30				
Hexachlorobutadiene	108	107	56-134	0	30				
2-Hexanone	95	97	55-127	2	30				
Isopropylbenzene	113	115	75-128	2	30				
p-Isopropyltoluene	118	119	76-123	1	30				
Methyl Acetate	119	111	66-144	7	30				
Methyl Tertiary Butyl Ether	104	107	72-126	2	30				
4-Methyl-2-pentanone	98	98	63-123	0	30				
Methylcyclohexane	117	114	80-156	3	30				
Methylene Chloride	114	109	79-120	4	30				
Naphthalene	106	107	52-125	2	30				
n-Propylbenzene	120	121	74-134	1	30				
Styrene	107	108	78-125	1	30				

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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1281468
Reported: 01/05/12 at 10:25 AM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
1,1,1,2-Tetrachloroethane	102	103	82-119	1	30				
1,1,2,2-Tetrachloroethane	108	109	72-128	1	30				
Tetrachloroethene	111	112	80-128	1	30				
Toluene	112	112	80-125	1	30				
1,2,3-Trichlorobenzene	106	108	69-119	1	30				
1,2,4-Trichlorobenzene	104	107	70-124	3	30				
1,1,1-Trichloroethane	110	112	80-143	1	30				
1,1,2-Trichloroethane	107	110	77-124	3	30				
Trichloroethene	112	113	88-133	1	30				
Trichlorofluoromethane	120	116	73-152	3	30				
1,2,3-Trichloropropane	108	109	76-118	1	30				
1,2,4-Trimethylbenzene	116	118	72-130	2	30				
1,3,5-Trimethylbenzene	115	116	72-131	1	30				
Vinyl Chloride	105	105	66-133	0	30				
m+p-Xylene	112	113	79-125	1	30				
o-Xylene	108	110	79-125	2	30				
Batch number: 11354SLE026	Sample number(s): 6502117-6502131,6502133-6502137 UNSPK: 6502117								
Acenaphthene	87	91	41-135	4	30				
Acenaphthylene	98	94	47-137	4	30				
Anthracene	98	96	40-147	2	30				
Benzo(a)anthracene	84	83	32-150	1	30				
Benzo(a)pyrene	93	91	57-129	2	30				
Benzo(b)fluoranthene	106	97	53-131	8	30				
Benzo(g,h,i)perylene	92	88	60-123	3	30				
Benzo(k)fluoranthene	91	89	61-131	2	30				
Benzyl alcohol	82	86	63-128	4	30				
1,1'-Biphenyl	87	88	51-127	1	30				
4-Bromophenyl-phenylether	103	100	46-131	3	30				
Butylbenzylphthalate	92	82	26-161	12	30				
Di-n-butylphthalate	100	93	32-139	7	30				
Carbazole	93	90	36-148	3	30				
4-Chloro-3-methylphenol	93	82	33-144	13	30				
4-Chloroaniline	75	60	11-114	22	30				
bis(2-Chloroethoxy)methane	86	80	44-132	7	30				
bis(2-Chloroethyl)ether	86	83	45-139	4	30				
2-Chloronaphthalene	100	114	22-131	14	30				
2-Chlorophenol	97	87	29-151	10	30				
4-Chlorophenyl-phenylether	96	96	42-130	0	30				
Chrysene	81	83	76-114	3	30				
Dibenz(a,h)anthracene	95	89	37-151	6	30				
Dibenzofuran	83	89	38-148	6	30				
3,3'-Dichlorobenzidine	86	77	10-143	10	30				
2,4-Dichlorophenol	101	85	35-142	17	30				
Diethylphthalate	96	95	32-137	1	30				
2,4-Dimethylphenol	94	85	27-143	10	30				
Dimethylphthalate	91	88	26-141	3	30				
4,6-Dinitro-2-methylphenol	20	0*	10-148	200*	30				
2,4-Dinitrophenol	10*	0*	20-143	200*	30				
2,4-Dinitrotoluene	90	86	27-147	6	30				
2,6-Dinitrotoluene	95	92	44-140	3	30				
1,4-Dioxane	36	47	31-77	26	30				
bis(2-Ethylhexyl)phthalate	93	86	38-151	8	30				

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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1281468
Reported: 01/05/12 at 10:25 AM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Fluoranthene	87	98	48-122	9	30				
Fluorene	92	91	35-140	0	30				
Hexachlorobenzene	108	101	53-137	6	30				
Hexachlorocyclopentadiene	0*	0*	10-153	0	30				
Hexachloroethane	82	77	71-104	7	30				
Indeno(1,2,3-cd)pyrene	95	91	61-123	4	30				
Isophorone	84	79	54-122	6	30				
2-Methylnaphthalene	92	90	23-141	2	30				
2-Methylphenol	93	85	30-145	9	30				
4-Methylphenol	86	77	36-149	10	30				
2-Nitroaniline	92	118	46-146	24	30				
3-Nitroaniline	92	82	34-134	12	30				
4-Nitroaniline	78	117	26-124	40*	30				
Nitrobenzene	88	85	37-139	4	30				
2-Nitrophenol	89	75	25-151	17	30				
4-Nitrophenol	76	65	15-149	16	30				
N-Nitroso-di-n-propylamine	81	76	46-128	6	30				
N-Nitrosodiphenylamine	101	96	33-148	6	30				
Di-n-octylphthalate	108	98	43-149	9	30				
Pentachlorophenol	39	47	23-145	19	30				
Phenanthrene	86	101	34-147	13	30				
Phenol	86	82	39-151	4	30				
Pyrene	86	94	76-124	7	30				
2,4,5-Trichlorophenol	95	84	25-143	12	30				
2,4,6-Trichlorophenol	91	82	41-142	10	30				
Batch number: 11354SLF026	Sample number(s): 6502138-6502140 UNSPK: P504454								
Acenaphthene	79	78	41-135	0	30				
Acenaphthylene	74	72	47-137	3	30				
Anthracene	53	54	40-147	3	30				
Benzo(a)anthracene	41	46	32-150	13	30				
Benzo(a)pyrene	36*	45*	57-129	22	30				
Benzo(b)fluoranthene	42*	50*	53-131	18	30				
Benzo(g,h,i)perylene	35*	45*	60-123	27	30				
Benzo(k)fluoranthene	41*	45*	61-131	10	30				
Benzyl alcohol	89	89	63-128	0	30				
1,1'-Biphenyl	78	76	51-127	2	30				
4-Bromophenyl-phenylether	95	95	46-131	0	30				
Butylbenzylphthalate	91	89	26-161	2	30				
Di-n-butylphthalate	95	93	32-139	2	30				
Carbazole	56	54	36-148	4	30				
4-Chloro-3-methylphenol	91	86	33-144	5	30				
4-Chloroaniline	51	45	11-114	13	30				
bis(2-Chloroethoxy)methane	101	98	44-132	2	30				
bis(2-Chloroethyl)ether	98	96	45-139	1	30				
2-Chloronaphthalene	60	57	22-131	4	30				
2-Chlorophenol	83	83	29-151	1	30				
4-Chlorophenyl-phenylether	91	88	42-130	3	30				
Chrysene	37*	43*	76-114	16	30				
Dibenz(a,h)anthracene	35*	46	37-151	27	30				
Dibenzofuran	63	61	38-148	2	30				
3,3'-Dichlorobenzidine	0*	0*	10-143	0	30				
2,4-Dichlorophenol	87	82	35-142	6	30				

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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1281468
Reported: 01/05/12 at 10:25 AM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Diethylphthalate	97	95	32-137	2	30				
2,4-Dimethylphenol	107	104	27-143	2	30				
Dimethylphthalate	94	88	26-141	6	30				
4,6-Dinitro-2-methylphenol	12	0*	10-148	200*	30				
2,4-Dinitrophenol	13*	12*	20-143	2	30				
2,4-Dinitrotoluene	69	66	27-147	4	30				
2,6-Dinitrotoluene	92	89	44-140	3	30				
1,4-Dioxane	45	48	31-77	5	30				
bis(2-Ethylhexyl)phthalate	95	93	38-151	2	30				
Fluoranthene	51	53	48-122	4	30				
Fluorene	70	69	35-140	1	30				
Hexachlorobenzene	82	81	53-137	1	30				
Hexachlorocyclopentadiene	31	36	10-153	16	30				
Hexachloroethane	93	91	71-104	2	30				
Indeno(1,2,3-cd)pyrene	33*	45*	61-123	30	30				
Isophorone	104	101	54-122	2	30				
2-Methylnaphthalene	78	75	23-141	3	30				
2-Methylphenol	86	83	30-145	3	30				
4-Methylphenol	83	82	36-149	0	30				
2-Nitroaniline	70	63	46-146	9	30				
3-Nitroaniline	35	30*	34-134	17	30				
4-Nitroaniline	28	26	26-124	8	30				
Nitrobenzene	85	81	37-139	5	30				
2-Nitrophenol	69	65	25-151	5	30				
4-Nitrophenol	39	42	15-149	8	30				
N-Nitroso-di-n-propylamine	97	98	46-128	2	30				
N-Nitrosodiphenylamine	90	90	33-148	0	30				
Di-n-octylphthalate	112	105	43-149	7	30				
Pentachlorophenol	53	45	23-145	16	30				
Phenanthrene	55	56	34-147	2	30				
Phenol	88	87	39-151	0	30				
Pyrene	46*	49*	76-124	6	30				
2,4,5-Trichlorophenol	77	76	25-143	2	30				
2,4,6-Trichlorophenol	84	82	41-142	2	30				
Batch number: 11354WAB026	Sample number(s): 6502132 UNSPK: P502843								
Acenaphthene	107	105	78-107	12	30				
Acenaphthylene	115	114	75-124	11	30				
Anthracene	112	110	78-114	11	30				
Benzo(a)anthracene	119*	115*	76-114	13	30				
Benzo(a)pyrene	118	116	58-128	11	30				
Benzo(b)fluoranthene	108	115	65-125	3	30				
Benzo(g,h,i)perylene	112	110	72-122	11	30				
Benzo(k)fluoranthene	113	115	71-121	7	30				
Benzyl alcohol	89	88	65-96	10	30				
1,1'-Biphenyl	99	99	67-114	10	30				
4-Bromophenyl-phenylether	112	111	79-118	10	30				
Butylbenzylphthalate	111	109	68-122	11	30				
Di-n-butylphthalate	110	109	79-118	11	30				
Carbazole	108	106	82-112	12	30				
4-Chloro-3-methylphenol	103	104	19-155	9	30				
4-Chloroaniline	90	89	23-118	11	30				
bis(2-Chloroethoxy)methane	107	108	65-119	8	30				

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1281468
Reported: 01/05/12 at 10:25 AM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
bis(2-Chloroethyl)ether	103	103	41-143	9	30				
2-Chloronaphthalene	111	108	49-141	12	30				
2-Chlorophenol	95	93	27-146	12	30				
4-Chlorophenyl-phenylether	105	104	73-117	11	30				
Chrysene	113	109	78-116	13	30				
Dibenz(a,h)anthracene	113	111	73-133	11	30				
Dibenzofuran	104	103	71-116	10	30				
3,3'-Dichlorobenzidine	67	81	16-128	10	30				
2,4-Dichlorophenol	105	107	30-154	8	30				
Diethylphthalate	107	106	74-118	10	30				
2,4-Dimethylphenol	106	108	20-145	7	30				
Dimethylphthalate	102	105	38-126	6	30				
4,6-Dinitro-2-methylphenol	106	110	26-149	6	30				
2,4-Dinitrophenol	91	93	20-168	7	30				
2,4-Dinitrotoluene	108	107	70-124	11	30				
2,6-Dinitrotoluene	109	108	47-140	11	30				
1,4-Dioxane	58	55	27-83	16	30				
bis(2-Ethylhexyl)phthalate	110	109	72-122	10	30				
Fluoranthene	112*	110	73-110	11	30				
Fluorene	109	109	71-123	10	30				
Hexachlorobenzene	110	109	77-122	11	30				
Hexachlorocyclopentadiene	91	93	15-143	7	30				
Hexachloroethane	86	85	54-119	10	30				
Indeno(1,2,3-cd)pyrene	112	109	69-120	11	30				
Isophorone	109	111	73-114	8	30				
2-Methylnaphthalene	104	103	80-111	10	30				
2-Methylphenol	87	90	10-146	6	30				
4-Methylphenol	80	83	10-147	6	30				
2-Nitroaniline	109	106	49-141	12	30				
3-Nitroaniline	104	104	44-133	9	30				
4-Nitroaniline	82	80	46-117	12	30				
Nitrobenzene	105	106	48-136	8	30				
2-Nitrophenol	104	108	34-146	6	30				
4-Nitrophenol	44	38	10-109	24	30				
N-Nitroso-di-n-propylamine	104	103	72-119	10	30				
N-Nitrosodiphenylamine	109	108	74-122	10	30				
Di-n-octylphthalate	118	117	58-137	10	30				
Pentachlorophenol	126	129	23-133	7	30				
Phenanthrene	107	104	72-121	12	30				
Phenol	39	40	10-83	9	30				
Pyrene	111	110	77-117	11	30				
2,4,5-Trichlorophenol	110	110	32-144	9	30				
2,4,6-Trichlorophenol	107	110	27-147	7	30				
Batch number: 113531026002A	Sample number(s): 6502117-6502131,6502133-6502137						UNSPK: 6502117		BKG: 6502117
Arsenic	-40 (2)	14 (2)	75-125	11	20	9.93	8.51	15	20
Batch number: 113535708001	Sample number(s): 6502117-6502131,6502133-6502137						UNSPK: 6502120		BKG: 6502120
Cadmium	96	97	75-125	2	20	0.292 J	0.363 J	22* (1)	20
Chromium	83	88	75-125	4	20	14.9	18.7	23*	20
Lead	89	99	75-125	8	20	7.05	7.13	1 (1)	20
Selenium	82	81	75-125	0	20	6.16	6.66	8 (1)	20
Silver	89	86	75-125	2	20	0.887	0.738	18 (1)	20

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1281468
Reported: 01/05/12 at 10:25 AM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 113535711001	Sample number(s): 6502117-6502131,6502133-6502137 UNSPK: 6502125 BKG: 6502125								
Mercury	84	84	80-120	2	20	0.0378 J	0.0159 J	82* (1)	20
Batch number: 113545708002	Sample number(s): 6502138-6502140 UNSPK: P504439 BKG: P504439								
Barium	90	104	75-125	9	20	111	111	0	20
Cadmium	86	107	75-125	16	20	1.47 J	1.23 J	18 (1)	20
Chromium	-1240 (2)	-1106 (2)	75-125	18	20	391	104	116*	20
Lead	-160 (2)	1201 (2)	75-125	22*	20	823	1,090	28*	20
Selenium	94	80	75-125	17	20	3.40 U	3.27 U	0 (1)	20
Silver	88	100	75-125	11	20	0.415 U	0.726 J	200* (1)	20
Batch number: 113545711003	Sample number(s): 6502138-6502140 UNSPK: P504439 BKG: P504439								
Mercury	545 (2)	178 (2)	80-120	29*	20	1.48	1.60	8 (1)	20
Batch number: 113546050004A	Sample number(s): 6502132 UNSPK: P502611 BKG: P502611								
Arsenic	109	110	75-125	0	20	0.0305	0.0311	2	20
Batch number: 113565713002	Sample number(s): 6502132 UNSPK: P506029 BKG: P506029								
Mercury	102	105	80-120	3	20	0.000026 U	0.000026 U	0 (1)	20
Batch number: 113571026001A	Sample number(s): 6502138-6502140 UNSPK: P505709 BKG: P505709								
Arsenic	-4190 (2)	1870 (2)	75-125	14	20	860	873	2	20
Batch number: 113575705002	Sample number(s): 6502132 UNSPK: P506902 BKG: P506902								
Barium	100	98	78-118	1	20	0.643	0.619	4	20
Cadmium	102	100	83-116	2	20	0.0028 J	0.0026 J	8 (1)	20
Chromium	99	98	81-120	1	20	0.0075 J	0.0072 J	4 (1)	20
Lead	91	94	75-125	3	20	0.0110 U	0.0110 U	0 (1)	20
Selenium	106	106	75-125	0	20	0.0069 U	0.0084 J	200* (1)	20
Silver	103	102	75-125	1	20	0.0021 J	0.0022 J	2 (1)	20
Batch number: 120045708004	Sample number(s): 6502117-6502131,6502133-6502137 UNSPK: 6502117 BKG: 6502117								
Barium	91	84	75-125	4	20	214	178	19	20
Batch number: 11354820003A	Sample number(s): 6502117-6502126 BKG: 6502119								
Moisture						19.8	20.1	2	15
Batch number: 11354820003B	Sample number(s): 6502127-6502131,6502133-6502137 BKG: 6502130								
Moisture						16.9	18.3	8	15
Batch number: 11354820005A	Sample number(s): 6502138-6502140 BKG: 6502140								
Moisture						19.3	19.6	1	15

Surrogate Quality Control

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1281468
Reported: 01/05/12 at 10:25 AM

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 8260 Ext. Soil Master
Batch number: A113611AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
6502119	104	105	107	88
6502123	104	104	104	99
6502124	103	103	102	96
6502125	102	99	110	87
6502126	103	101	108	90
6502127	104	103	101	94
6502128	105	102	104	89
6502130	102	97	105	99
Blank	101	98	104	97
DUP	102	103	104	94
LCS	103	97	105	101
LCSD	101	99	105	99
MS	103	105	105	100
Limits:	71-114	70-109	70-123	70-111

Analysis Name: 8260 Ext. Soil Master
Batch number: A113622AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
6502131	100	102	105	92
6502133	101	104	103	94
6502134	100	100	104	93
6502135	101	104	103	92
6502136	110	114*	126*	70
6502138	100	100	108	89
6502139	101	103	104	96
6502140	101	101	106	93
Blank	101	99	103	96
DUP	98	101	104	95
LCS	100	103	104	99
LCSD	101	103	104	99
Limits:	71-114	70-109	70-123	70-111

Analysis Name: 8260 Ext. Soil Master
Batch number: A113631AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
6502136 RE	106	111*	130*	68*
Blank	102	102	102	93
LCS	101	100	106	99
LCSD	100	98	106	99
Limits:	71-114	70-109	70-123	70-111

Analysis Name: 8260 Ext. Soil Master
Batch number: Q113562AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1281468
Reported: 01/05/12 at 10:25 AM

Surrogate Quality Control

6502117	103	104	99	96
6502118	105	108	99	100
6502120	104	109	105	87
6502121	103	104	100	94
Blank	100	97	98	97
LCS	100	96	102	102
MS	102	108	103	99
MSD	102	103	102	99
Limits:	71-114	70-109	70-123	70-111

Analysis Name: 8260 Ext. Soil Master
Batch number: R113631AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
6502122	80	84	77	66*
6502122	81	85	75	65*
RE				
6502129	76	79	71	63*
6502129	76	81	72	63*
RE				
6502137	69*	73	67*	64*
6502137	68*	70	64*	65*
RE				
Blank	92	95	86	75
LCS	94	97	90	78
LCSD	93	95	90	78
Limits:	71-114	70-109	70-123	70-111

Analysis Name: 8260 Ext. Water Master
Batch number: Y113621AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
6502141	99	100	99	96
Blank	99	101	100	96
LCS	100	103	101	99
MS	99	104	102	99
MSD	99	102	101	100
Limits:	80-116	77-113	80-113	78-113

Analysis Name: TCL 8270 (microwave)
Batch number: 11354SLE026

	Phenol-d6	2-Fluorophenol	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
6502117	94	97	100	87	90	100
6502118	92	97	94	89	97	105
6502119	93	98	101	87	98	108
6502120	49	50	72	57	65	78
6502121	93	100	106	88	97	109
6502122	96	101	110	89	95	110
6502123	93	97	108	87	90	108
6502124	88	91	99	87	90	102
6502125	86	88	100	84	87	100
6502126	93	99	115	87	87	106

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1281468
Reported: 01/05/12 at 10:25 AM

Surrogate Quality Control

6502127	92	96	106	88	90	107
6502128	86	87	95	84	86	101
6502129	95	100	105	87	89	104
6502130	92	100	109	90	92	110
6502131	92	97	109	87	90	111
6502133	90	95	97	86	88	100
6502134	90	95	102	85	88	104
6502135	92	98	106	88	91	108
6502136	76	80	58	72	71	71
6502137	99	105	107	85	90	101
Blank	70	76	84	70	71	77
LCS	87	93	106	89	96	101
MS	90	97	85	87	86	97
MSD	88	87	77	82	88	96
Limits:	42-130	39-136	28-139	45-123	56-121	43-124

Analysis Name: TCL 8270 (microwave)
Batch number: 11354SLF026

	Phenol-d6	2-Fluorophenol	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
6502138	97	96	85	95	91	90
6502139	96	98	82	92	85	86
6502140	99	102	85	89	85	87
Blank	106	112	104	107	100	105
LCS	108	113	95	103	98	111
MS	84	89	73	82	81	53
MSD	83	87	68	77	77	50
Limits:	42-130	39-136	28-139	45-123	56-121	43-124

Analysis Name: TCL SW846 Semivolatiles/Waters
Batch number: 11354WAB026

	2-Fluorophenol	Phenol-d6	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
6502132	51	31	98	98	96	91
Blank	48	28	95	90	88	90
LCS	54	32	100	99	98	102
MS	56	37	97	98	95	106
MSD	52	38	96	99	93	102
Limits:	10-98	10-74	22-150	52-120	63-114	34-118

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Analysis Request/ Environmental Services Chain of Custody

Page 1 of 3

Lancaster Laboratories

For Lancaster Laboratories use only

Acct. # 11372 Group# 1281468 Sample # 650217-41

COC # 276357

Please print. Instructions on reverse side correspond with circled numbers.

For Lab Use Only
FSC: _____
SCR#: _____

(1) Client: DOW Hanging Rock Acct. #: _____
Project Name/#: 420671.01.FT PWSID #: _____
Project Manager: Mark Holland P.O.#: 420671-04
Sampler: OSaguona Ogbeber Quote #: _____
Name of state where samples were collected: Ohio

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

(6) Temperature of samples upon receipt (if requested)

(2) Sample Identification	Date Collected	Time Collected	(3) Grab	Composite	Matrix (4) Soil	Water (Potable / NPDES)	Other	Total # of Containers	(5) Analyses Requested / Preservation Codes: SVOCs	VOCs	Metals	Moisture Content	Remarks
S15-SS04-0002-121511	12/15/11	0930		X	X			4	✓	✓	✓	✓	
S15-SS04-0305-121511	12/15/11	0945		X	X			4	✓	✓	✓	✓	
S15-SS04-0810-121511	12/15/11	1000		X	X			4	✓	✓	✓	✓	
S15-SS03-0002-121511	12/15/11	1105		X	X			4	✓	✓	✓	✓	
S15-SS03-0305-121511	12/15/11	1110		X	X			4	✓	✓	✓	✓	
S15-SS03-0810-121511	12/15/11	1115		X	X			4	✓	✓	✓	✓	
S15-SS03-1315-121511	12/15/11	1330		X	X			4	✓	✓	✓	✓	
S15-SS01-0002-121511	12/15/11	1140		X	X			4	✓	✓	✓	✓	
S15-SS01-0305-121511	12/15/11	1145		X	X			4	✓	✓	✓	✓	
S15-SS01-0810-121511	12/15/11	1150		X	X			4	✓	✓	✓	✓	

(7) **Turnaround Time Requested** (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed: NA
Rush results requested by (please circle): Phone Fax E-mail
Phone #: _____ Fax #: _____
E-mail address: _____

(8) **Data Package Options** (please circle if required)
Type I (validation/NJ Reg)
Type II (Tier II)
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)
TX TRRP-13
MA MCP CT RCP
SDG Complete? Yes No
Site-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate volume.)
Internal COC Required? Yes / No _____

(9) Relinquished by:	Date	Time	Received by:	Date	Time
OSaguona	12/15/11	1630			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	12/16/11	0930

Analysis Request/ Environmental Services Chain of Custody

Lancaster Laboratories

For Lancaster Laboratories use only

Acct. # 11372 Group# 1281468 Sample # 6502117-41

COC # 276358

Please print. Instructions on reverse side correspond with circled numbers.

(1) Client: Dow Henging Rock Acct. #:

Project Name/#: 420671.010.FI PWSID #:

Project Manager: Mark Holland P.O.#: 420671-04

Sampler: Osagwona Ogbebor Quote #:

Name of state where samples were collected: Ohio

(2) Sample Identification | Date Collected | Time Collected | (3) Grab | Composite | (4) Matrix: Soil | Water (Check if Potable / NPDES) | Other | Total # of Containers | (5) Analyses Requested / Preservation Codes: VOCs | SVOCs | Metals | Moisture Content | Remarks

Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water	Other	Total # of Containers	VOCs	SVOCs	Metals	Moisture Content	Remarks
S15-5502-0002-121511	12/15/11	1225		X	X			4	✓	✓	✓	✓	
S15-5502-0308-121511	12/15/11	1230		X	X			4	✓	✓	✓	✓	
S15-5502-0819-121511	12/15/11	1235		X	X			4	✓	✓	✓	✓	
S15-5502-1315-121511	12/15/11	1255		X	X			4	✓	✓	✓	✓	
S15-5502-2022-121511	12/15/11	1305		X	X			4	✓	✓	✓	✓	

For Lab Use Only

FSC:

SCR#:

Preservation Codes

H=HCl T=Thiosulfate

N=HNO_3 B=NaOH

S=H_2SO_4 O=Other

(6) Temperature of samples upon receipt (if requested)

(7) **Turnaround Time Requested** (TAT) (please circle): Normal Rush

(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)

Date results are needed:

Rush results requested by (please circle): Phone Fax E-mail

Phone #: Fax #:

E-mail address:

(8) **Data Package Options** (please circle if required)

Type I (validation/NJ Reg) TX TRRP-13

Type II (Tier II) MA MCP CT RCP

Type III (Reduced NJ)

Type IV (CLP SOW)

Type VI (Raw Data Only)

SDG Complete? Yes No

Site-specific QC (MS/MSD/Dup)? Yes No

(If yes, indicate QC sample and submit triplicate volume.)

Internal COC Required? Yes / No

Relinquished by:	Date	Time	Received by:	Date	Time
Osagwona	12/15/11	1630			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	12/16/11	0930

(9)

Lancaster Laboratories, Inc., 2425 New Holland Pike, Lancaster, PA 17601 (717) 656-2300 Fax: (717) 656-6766

Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client.

Issued by Dept. 6042 Management

2102.05

Analysis Request/ Environmental Services Chain of Custody

Lancaster Laboratories

3 of 3

For Lancaster Laboratories use only

Acct. # 11372 Group# 1281468 Sample # 6502117-41

COC # 276359

Please print. Instructions on reverse side correspond with circled numbers.

(1) Client: Dow Hanging Rock Acct. #:

Project Name/#: 420671-05 · FS PWSID #:

Project Manager: Mark Holland P.O.#: 420671-04

Sampler: Osaguona Ogbebor Quote #:

Name of state where samples were collected: Ohio

(2) Sample Identification	Date Collected	Time Collected	(3) Grab	(3) Composite	(4) Matrix: Soil	Water	Other	Total # of Containers	(5) Analyses Requested / Preservation Codes: VOCs	SVOCs	Metals	Moisture Content					(6) Temperature of samples upon receipt (if requested)	Remarks
HGR-121511-EB01	12/15/11	1425	X			X		3		V	V							
HGR121511-FD01	12/15/11	—		X	X			4	V	V	V	V						
HGR-121511-FD02	12/15/11	—		X	X			4	V	V	V	V						
HGR-121511-FD03	12/15/11	—		X	X			4	V	V	V	V						
HGR-121511-FD04	12/15/11	—		X	X			4	V	V	V	V						
HGR-121511-FD05	12/15/11	—		X	X			4	V	V	V	V						
HGR-121511-FD06	12/15/11	—		X	X			4	V	V	V	V						
HGR-121511-FD07	12/15/11	—		X	X			4	V	V	V	V						
HGR-121511-FD08	12/15/11	—		X	X			4	V	V	V	V						
121511TB	12/01/11	—	X			X		2	V									

For Lab Use Only
FSC:
SCR#:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

(7) **Turnaround Time Requested** (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed: ASAP
Rush results requested by (please circle): Phone Fax E-mail
Phone #: Fax #:
E-mail address:

(8) **Data Package Options** (please circle if required)
Type I (validation/NJ Reg)
Type II (Tier II)
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)
TX TRRP-13
MA MCP CT RCP
SDG Complete? Yes No
Site-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate volume.)
Internal COC Required? Yes / No

(9)

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	12/15/11	1630			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by: [signature]	12/16/11	0930

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

J estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike sample not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*****	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL LANCASTER LABORATORIES BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF LANCASTER LABORATORIES AND (B) WHETHER LANCASTER LABORATORIES HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Lancaster Laboratories which includes any conditions that vary from the Standard Terms and Conditions, and Lancaster hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Analysis Report

ANALYTICAL RESULTS

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425

Prepared for:

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

December 30, 2011

Project: Dow Hanging Rock, OH

Submittal Date: 12/17/2011
Group Number: 1281639
SDG: DHR12
PO Number: 420671-04
Release Number: DHR12
State of Sample Origin: OH

Client Sample Description	Lancaster Labs (LLI) #
121611TB Water Sample	6503453
HGR-IDW-W1 Composite Water Sample	6503454
HGR-IDW-S1 Composite Soil Sample	6503455
HGR-IDW-S2 Composite Soil Sample	6503456
HGR-IDW-S3 Composite Soil Sample	6503457

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Shane Lowe
ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Rachel Grand
1 COPY TO	Data Package Group	

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Questions? Contact your Client Services Representative
Wendy A Kozma at (717) 656-2300 Ext. 1522

Respectfully Submitted,

Robert Heisey

Robert Heisey
Senior Specialist

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Analysis Report

Sample Description: 121611TB Water Sample
Dow Hanging Rock, OH

LLI Sample # WW 6503453
LLI Group # 1281639
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011

Submitted: 12/17/2011 09:45
Reported: 12/30/2011 16:10

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

-TB-- SDG#: DHR12-01TB

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**EPA 624**		ug/l		ug/l	
10371	Acrolein	107-02-8	10	U	10	1
10371	Acrylonitrile	107-13-1	10	U	10	1
10371	Benzene	71-43-2	0.9	U	0.9	1
10371	Bromodichloromethane	75-27-4	0.7	U	0.7	1
10371	Bromoform	75-25-2	0.8	U	0.8	1
10371	Bromomethane	74-83-9	2	U	2	1
10371	Carbon Tetrachloride	56-23-5	1	U	1	1
10371	Chlorobenzene	108-90-7	0.8	U	0.8	1
10371	Chloroethane	75-00-3	2	U	2	1
10371	2-Chloroethyl Vinyl Ether	110-75-8	2	U	2	1
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.					
10371	Chloroform	67-66-3	1	U	1	1
10371	Chloromethane	74-87-3	2	U	2	1
10371	Dibromochloromethane	124-48-1	1	U	1	1
10371	1,2-Dichlorobenzene	95-50-1	1	U	1	1
10371	1,3-Dichlorobenzene	541-73-1	1	U	1	1
10371	1,4-Dichlorobenzene	106-46-7	1	U	1	1
10371	1,1-Dichloroethane	75-34-3	1	U	1	1
10371	1,2-Dichloroethane	107-06-2	1	U	1	1
10371	1,1-Dichloroethene	75-35-4	0.9	U	0.9	1
10371	cis-1,2-Dichloroethene	156-59-2	1	U	1	1
10371	trans-1,2-Dichloroethene	156-60-5	1	U	1	1
10371	1,2-Dichloropropane	78-87-5	1	U	1	1
10371	cis-1,3-Dichloropropene	10061-01-5	1	U	1	1
10371	trans-1,3-Dichloropropene	10061-02-6	0.6	U	0.6	1
10371	Ethylbenzene	100-41-4	0.8	U	0.8	1
10371	Methylene Chloride	75-09-2	2	U	2	1
10371	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	1
10371	Tetrachloroethene	127-18-4	1	U	1	1
10371	Toluene	108-88-3	0.8	U	0.8	1
10371	1,1,1-Trichloroethane	71-55-6	1	U	1	1
10371	1,1,2-Trichloroethane	79-00-5	1	U	1	1
10371	Trichloroethene	79-01-6	1	U	1	1
10371	Trichlorofluoromethane	75-69-4	2	U	2	1
10371	Vinyl Chloride	75-01-4	2	U	2	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10371	EPA 624 water	EPA 624	1	M113551AA	12/21/2011 21:06	Jason M Long	1

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Analysis Report

Sample Description: HGR-IDW-W1 Composite Water Sample
Dow Hanging Rock, OH

LLI Sample # WW 6503454
LLI Group # 1281639
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/16/2011 11:00 by BW

Submitted: 12/17/2011 09:45
Reported: 12/30/2011 16:10

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

-W1-- SDG#: DHR12-02

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**EPA 624**		**ug/l**		**ug/l**	
10371	Acrolein	107-02-8	10	U	10	1
10371	Acrylonitrile	107-13-1	10	U	10	1
10371	Benzene	71-43-2	0.9	U	0.9	1
10371	Bromodichloromethane	75-27-4	0.7	U	0.7	1
10371	Bromoform	75-25-2	0.8	U	0.8	1
10371	Bromomethane	74-83-9	2	U	2	1
10371	Carbon Tetrachloride	56-23-5	1	U	1	1
10371	Chlorobenzene	108-90-7	0.8	U	0.8	1
10371	Chloroethane	75-00-3	2	U	2	1
10371	2-Chloroethyl Vinyl Ether	110-75-8	2	U	2	1
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.					
10371	Chloroform	67-66-3	2	J	1	1
10371	Chloromethane	74-87-3	2	U	2	1
10371	Dibromochloromethane	124-48-1	1	U	1	1
10371	1,2-Dichlorobenzene	95-50-1	1	U	1	1
10371	1,3-Dichlorobenzene	541-73-1	1	U	1	1
10371	1,4-Dichlorobenzene	106-46-7	1	U	1	1
10371	1,1-Dichloroethane	75-34-3	1	U	1	1
10371	1,2-Dichloroethane	107-06-2	1	U	1	1
10371	1,1-Dichloroethene	75-35-4	0.9	U	0.9	1
10371	cis-1,2-Dichloroethene	156-59-2	1	U	1	1
10371	trans-1,2-Dichloroethene	156-60-5	1	U	1	1
10371	1,2-Dichloropropane	78-87-5	1	U	1	1
10371	cis-1,3-Dichloropropene	10061-01-5	1	U	1	1
10371	trans-1,3-Dichloropropene	10061-02-6	0.6	U	0.6	1
10371	Ethylbenzene	100-41-4	2	J	0.8	1
10371	Methylene Chloride	75-09-2	2	U	2	1
10371	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	1
10371	Tetrachloroethene	127-18-4	1	U	1	1
10371	Toluene	108-88-3	0.8	U	0.8	1
10371	1,1,1-Trichloroethane	71-55-6	1	U	1	1
10371	1,1,2-Trichloroethane	79-00-5	1	U	1	1
10371	Trichloroethene	79-01-6	1	U	1	1
10371	Trichlorofluoromethane	75-69-4	2	U	2	1
10371	Vinyl Chloride	75-01-4	2	U	2	1
GC/MS Semivolatiles	**EPA 625**		**ug/l**		**ug/l**	
10334	Acenaphthene	83-32-9	0.3	U	0.3	1
10334	Acenaphthylene	208-96-8	0.3	U	0.3	1
10334	Anthracene	120-12-7	0.2	U	0.2	1
10334	Benzidine	92-87-5	19	U	19	1
10334	Benzo(a)anthracene	56-55-3	0.2	U	0.2	1
10334	Benzo(a)pyrene	50-32-8	0.3	U	0.3	1
10334	Benzo(b)fluoranthene	205-99-2	0.3	U	0.3	1
10334	Benzo(g,h,i)perylene	191-24-2	0.2	U	0.2	1
10334	Benzo(k)fluoranthene	207-08-9	0.3	U	0.3	1
10334	4-Bromophenyl-phenylether	101-55-3	0.3	U	0.3	1
10334	Butylbenzylphthalate	85-68-7	0.8	U	0.8	1
10334	Di-n-butylphthalate	84-74-2	0.6	J	0.5	1
10334	4-Chloro-3-methylphenol	59-50-7	0.3	U	0.3	1

Sample Description: HGR-IDW-W1 Composite Water Sample
Dow Hanging Rock, OH

LLI Sample # WW 6503454
LLI Group # 1281639
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/16/2011 11:00 by BW

Submitted: 12/17/2011 09:45
Reported: 12/30/2011 16:10

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

-W1-- SDG#: DHR12-02

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Semivolatiles EPA 625			ug/l		ug/l	
10334	bis(2-Chloroethoxy)methane	111-91-1	0.5	U	0.5	1
10334	bis(2-Chloroethyl)ether	111-44-4	0.4	U	0.4	1
10334	bis(2-Chloroisopropyl)ether	39638-32-9	0.3	U	0.3	1
10334	2-Chloronaphthalene	91-58-7	0.2	U	0.2	1
10334	2-Chlorophenol	95-57-8	0.3	U	0.3	1
10334	4-Chlorophenyl-phenylether	7005-72-3	0.3	U	0.3	1
10334	Chrysene	218-01-9	0.2	U	0.2	1
10334	Dibenz(a,h)anthracene	53-70-3	0.4	U	0.4	1
10334	1,2-Dichlorobenzene	95-50-1	0.3	U	0.3	1
10334	1,3-Dichlorobenzene	541-73-1	0.3	U	0.3	1
10334	1,4-Dichlorobenzene	106-46-7	0.3	U	0.3	1
10334	3,3'-Dichlorobenzidine	91-94-1	0.8	U	0.8	1
10334	2,4-Dichlorophenol	120-83-2	0.3	U	0.3	1
10334	Diethylphthalate	84-66-2	0.4	J	0.3	1
10334	2,4-Dimethylphenol	105-67-9	0.3	U	0.3	1
10334	Dimethylphthalate	131-11-3	1	U	1	1
10334	4,6-Dinitro-2-methylphenol	534-52-1	4	U	4	1
10334	2,4-Dinitrophenol	51-28-5	10	U	10	1
10334	2,4-Dinitrotoluene	121-14-2	0.4	U	0.4	1
10334	2,6-Dinitrotoluene	606-20-2	0.3	U	0.3	1
10334	1,2-Diphenylhydrazine	122-66-7	0.2	U	0.2	1
10334	bis(2-Ethylhexyl)phthalate	117-81-7	6		1	1
10334	Fluoranthene	206-44-0	0.3	U	0.3	1
10334	Fluorene	86-73-7	0.3	U	0.3	1
10334	Hexachlorobenzene	118-74-1	1	U	1	1
10334	Hexachlorobutadiene	87-68-3	0.8	U	0.8	1
10334	Hexachlorocyclopentadiene	77-47-4	2	U	2	1
10334	Hexachloroethane	67-72-1	0.4	U	0.4	1
10334	Indeno(1,2,3-cd)pyrene	193-39-5	0.3	U	0.3	1
10334	Isophorone	78-59-1	0.3	U	0.3	1
10334	Naphthalene	91-20-3	0.2	U	0.2	1
10334	Nitrobenzene	98-95-3	0.5	U	0.5	1
10334	2-Nitrophenol	88-75-5	0.6	J	0.4	1
10334	4-Nitrophenol	100-02-7	5	U	5	1
10334	N-Nitrosodimethylamine	62-75-9	2	U	2	1
10334	N-Nitroso-di-n-propylamine	621-64-7	0.4	U	0.4	1
10334	N-Nitrosodiphenylamine	86-30-6	0.3	U	0.3	1
10334	Di-n-octylphthalate	117-84-0	0.5	U	0.5	1
10334	Pentachlorophenol	87-86-5	3	U	3	1
10334	Phenanthrene	85-01-8	0.3	J	0.2	1
10334	Phenol	108-95-2	0.4	U	0.4	1
10334	Pyrene	129-00-0	0.2	U	0.2	1
10334	1,2,4-Trichlorobenzene	120-82-1	0.3	U	0.3	1
10334	2,4,6-Trichlorophenol	88-06-2	0.7	U	0.7	1
Metals	**EPA 200.7 rev 4.4**		ug/l		ug/l	
07051	Chromium	7440-47-3	14.6	J	1.1	1
07053	Copper	7440-50-8	18.3		0.94	1
07055	Lead	7439-92-1	2.6	J	2.2	1
07061	Nickel	7440-02-0	11.2		0.95	1
07072	Zinc	7440-66-6	234		3.2	1

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Analysis Report

Sample Description: HGR-IDW-W1 Composite Water Sample
Dow Hanging Rock, OH

LLI Sample # WW 6503454
LLI Group # 1281639
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/16/2011 11:00 by BW

Submitted: 12/17/2011 09:45
Reported: 12/30/2011 16:10

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

-W1-- SDG#: DHR12-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
Wet Chemistry	**EPA 335.4**		**mg/l**	**mg/l**	
00237	Total Cyanide (water)	57-12-5	0.0050 U	0.0050	1
	SM20 5310 C		**mg/l**	**mg/l**	
00273	Total Organic Carbon	n.a.	8.4	0.50	1
	EPA 1664A		**mg/l**	**mg/l**	
08079	HEM (oil & grease)	n.a.	1.4 U	1.4	1
	SM20 2540 D		**mg/l**	**mg/l**	
00206	Total Suspended Solids	n.a.	122	7.5	1
	SM20 5210 B		**mg/l**	**mg/l**	
00235	Biochemical Oxygen Demand	n.a.	5.6	0.80	1

The laboratory control sample analyzed on this sample's batch yielded a recovery of 77%. The method acceptance window is 85% to 115%. Because the 48-hour holding time had lapsed, BOD was not reanalyzed. The above result is reported with client consent.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10371	EPA 624 water	EPA 624	1	M113551AA	12/21/2011 21:32	Jason M Long	1
10334	Method 625	EPA 625	1	11355WAA625	12/23/2011 08:46	Holly Berry	1
08108	625 Water Extraction	EPA 625	1	11355WAA625	12/21/2011 18:00	Nicholas W Shroyer	1
07051	Chromium	EPA 200.7 rev 4.4	1	113555716003	12/28/2011 20:20	John W Yanzuk II	1
07053	Copper	EPA 200.7 rev 4.4	1	113555716003	12/28/2011 20:20	John W Yanzuk II	1
07055	Lead	EPA 200.7 rev 4.4	1	113555716003	12/30/2011 09:10	Joanne M Gates	1
07061	Nickel	EPA 200.7 rev 4.4	1	113555716003	12/28/2011 20:20	John W Yanzuk II	1
07072	Zinc	EPA 200.7 rev 4.4	1	113555716003	12/28/2011 20:20	John W Yanzuk II	1
05716	EPA 600 ICP Digest (tot rec)	EPA 200.7 rev 4.4	1	113555716003	12/22/2011 08:36	Denise K Conners	1
00237	Total Cyanide (water)	EPA 335.4	1	11355102101A	12/22/2011 11:34	Venia B McFadden	1
00273	Total Organic Carbon	SM20 5310 C	2	11356237301A	12/21/2011 22:12	Joseph E McKenzie	1
00492	Cyanide Water Distillation	EPA 335.4	1	11355102101A	12/21/2011 13:15	Carolyn M Mastropietro	1
08079	HEM (oil & grease)	EPA 1664A	1	11361807901A	12/27/2011 08:55	Kathryn I DeHaven	1
00206	Total Suspended Solids	SM20 2540 D	1	11354020601A	12/20/2011 14:13	Hannah M Royer	1
00235	Biochemical Oxygen Demand	SM20 5210 B	1	11351023501A	12/17/2011 11:31	Hannah M Royer	1

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Analysis Report

Sample Description: HGR-IDW-S1 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6503455
LLI Group # 1281639
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/16/2011 11:11 by BW

Submitted: 12/17/2011 09:45
Reported: 12/30/2011 16:10

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

--S1- SDG#: DHR12-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	370	U	370	43.86
10949	Benzene	71-43-2	26	U	26	43.86
10949	Bromobenzene	108-86-1	53	U	53	43.86
10949	Bromochloromethane	74-97-5	53	U	53	43.86
10949	Bromodichloromethane	75-27-4	53	U	53	43.86
10949	Bromoform	75-25-2	53	U	53	43.86
10949	Bromomethane	74-83-9	110	U	110	43.86
10949	2-Butanone	78-93-3	210	U	210	43.86
10949	n-Butylbenzene	104-51-8	110	J	53	43.86
10949	sec-Butylbenzene	135-98-8	53	U	53	43.86
10949	tert-Butylbenzene	98-06-6	53	U	53	43.86
10949	Carbon Disulfide	75-15-0	53	U	53	43.86
10949	Carbon Tetrachloride	56-23-5	53	U	53	43.86
10949	Chlorobenzene	108-90-7	53	U	53	43.86
10949	Chloroethane	75-00-3	110	U	110	43.86
10949	Chloroform	67-66-3	53	U	53	43.86
10949	Chloromethane	74-87-3	110	U	110	43.86
10949	2-Chlorotoluene	95-49-8	53	U	53	43.86
10949	4-Chlorotoluene	106-43-4	53	U	53	43.86
10949	Cyclohexane	110-82-7	53	U	53	43.86
10949	1,2-Dibromo-3-chloropropane	96-12-8	110	U	110	43.86
10949	Dibromochloromethane	124-48-1	53	U	53	43.86
10949	1,2-Dibromoethane	106-93-4	53	U	53	43.86
10949	Dibromomethane	74-95-3	53	U	53	43.86
10949	1,2-Dichlorobenzene	95-50-1	53	U	53	43.86
10949	1,3-Dichlorobenzene	541-73-1	53	U	53	43.86
10949	1,4-Dichlorobenzene	106-46-7	53	U	53	43.86
10949	Dichlorodifluoromethane	75-71-8	110	U	110	43.86
10949	1,1-Dichloroethane	75-34-3	53	U	53	43.86
10949	1,2-Dichloroethane	107-06-2	53	U	53	43.86
10949	1,1-Dichloroethene	75-35-4	53	U	53	43.86
10949	cis-1,2-Dichloroethene	156-59-2	53	U	53	43.86
10949	trans-1,2-Dichloroethene	156-60-5	53	U	53	43.86
10949	1,2-Dichloropropane	78-87-5	53	U	53	43.86
10949	1,3-Dichloropropane	142-28-9	53	U	53	43.86
10949	2,2-Dichloropropane	594-20-7	53	U	53	43.86
10949	1,1-Dichloropropene	563-58-6	53	U	53	43.86
10949	cis-1,3-Dichloropropene	10061-01-5	53	U	53	43.86
10949	trans-1,3-Dichloropropene	10061-02-6	53	U	53	43.86
10949	Ethylbenzene	100-41-4	53	U	53	43.86
10949	Freon 113	76-13-1	110	U	110	43.86
10949	Hexachlorobutadiene	87-68-3	110	U	110	43.86
10949	2-Hexanone	591-78-6	160	U	160	43.86
10949	Isopropylbenzene	98-82-8	53	U	53	43.86
10949	p-Isopropyltoluene	99-87-6	53	U	53	43.86
10949	Methyl Acetate	79-20-9	150	J	110	43.86
10949	Methyl Tertiary Butyl Ether	1634-04-4	26	U	26	43.86
10949	4-Methyl-2-pentanone	108-10-1	160	U	160	43.86
10949	Methylcyclohexane	108-87-2	53	U	53	43.86
10949	Methylene Chloride	75-09-2	110	U	110	43.86
10949	Naphthalene	91-20-3	390		53	43.86

Sample Description: HGR-IDW-S1 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6503455
LLI Group # 1281639
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/16/2011 11:11 by BW

Submitted: 12/17/2011 09:45
Reported: 12/30/2011 16:10

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

--S1- SDG#: DHR12-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	53	U	53	43.86
10949	Styrene	100-42-5	53	U	53	43.86
10949	1,1,1,2-Tetrachloroethane	630-20-6	53	U	53	43.86
10949	1,1,2,2-Tetrachloroethane	79-34-5	53	U	53	43.86
10949	Tetrachloroethene	127-18-4	53	U	53	43.86
10949	Toluene	108-88-3	53	U	53	43.86
10949	1,2,3-Trichlorobenzene	87-61-6	53	U	53	43.86
10949	1,2,4-Trichlorobenzene	120-82-1	53	U	53	43.86
10949	1,1,1-Trichloroethane	71-55-6	53	U	53	43.86
10949	1,1,2-Trichloroethane	79-00-5	53	U	53	43.86
10949	Trichloroethene	79-01-6	53	U	53	43.86
10949	Trichlorofluoromethane	75-69-4	110	U	110	43.86
10949	1,2,3-Trichloropropane	96-18-4	53	U	53	43.86
10949	1,2,4-Trimethylbenzene	95-63-6	53	U	53	43.86
10949	1,3,5-Trimethylbenzene	108-67-8	53	U	53	43.86
10949	Vinyl Acetate	108-05-4	110	U	110	43.86
10949	Vinyl Chloride	75-01-4	53	U	53	43.86
10949	m+p-Xylene	179601-23-1	53	U	53	43.86
10949	o-Xylene	95-47-6	53	U	53	43.86
Trial ID: RE						
10949	Acetone	67-64-1	370	U	370	43.86
10949	Benzene	71-43-2	26	U	26	43.86
10949	Bromobenzene	108-86-1	53	U	53	43.86
10949	Bromochloromethane	74-97-5	53	U	53	43.86
10949	Bromodichloromethane	75-27-4	53	U	53	43.86
10949	Bromoform	75-25-2	53	U	53	43.86
10949	Bromomethane	74-83-9	110	U	110	43.86
10949	2-Butanone	78-93-3	210	U	210	43.86
10949	n-Butylbenzene	104-51-8	53	U	53	43.86
10949	sec-Butylbenzene	135-98-8	53	U	53	43.86
10949	tert-Butylbenzene	98-06-6	53	U	53	43.86
10949	Carbon Disulfide	75-15-0	53	U	53	43.86
10949	Carbon Tetrachloride	56-23-5	53	U	53	43.86
10949	Chlorobenzene	108-90-7	53	U	53	43.86
10949	Chloroethane	75-00-3	110	U	110	43.86
10949	Chloroform	67-66-3	53	U	53	43.86
10949	Chloromethane	74-87-3	110	U	110	43.86
10949	2-Chlorotoluene	95-49-8	53	U	53	43.86
10949	4-Chlorotoluene	106-43-4	53	U	53	43.86
10949	Cyclohexane	110-82-7	53	U	53	43.86
10949	1,2-Dibromo-3-chloropropane	96-12-8	110	U	110	43.86
10949	Dibromochloromethane	124-48-1	53	U	53	43.86
10949	1,2-Dibromoethane	106-93-4	53	U	53	43.86
10949	Dibromomethane	74-95-3	53	U	53	43.86
10949	1,2-Dichlorobenzene	95-50-1	53	U	53	43.86
10949	1,3-Dichlorobenzene	541-73-1	53	U	53	43.86
10949	1,4-Dichlorobenzene	106-46-7	82	J	53	43.86
10949	Dichlorodifluoromethane	75-71-8	110	U	110	43.86
10949	1,1-Dichloroethane	75-34-3	53	U	53	43.86
10949	1,2-Dichloroethane	107-06-2	53	U	53	43.86

Sample Description: HGR-IDW-S1 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6503455
LLI Group # 1281639
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/16/2011 11:11 by BW

Submitted: 12/17/2011 09:45
Reported: 12/30/2011 16:10

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

--S1- SDG#: DHR12-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	1,1-Dichloroethene	75-35-4	53	U	53	43.86
10949	cis-1,2-Dichloroethene	156-59-2	53	U	53	43.86
10949	trans-1,2-Dichloroethene	156-60-5	53	U	53	43.86
10949	1,2-Dichloropropane	78-87-5	53	U	53	43.86
10949	1,3-Dichloropropane	142-28-9	53	U	53	43.86
10949	2,2-Dichloropropane	594-20-7	53	U	53	43.86
10949	1,1-Dichloropropene	563-58-6	53	U	53	43.86
10949	cis-1,3-Dichloropropene	10061-01-5	53	U	53	43.86
10949	trans-1,3-Dichloropropene	10061-02-6	53	U	53	43.86
10949	Ethylbenzene	100-41-4	53	U	53	43.86
10949	Freon 113	76-13-1	110	U	110	43.86
10949	Hexachlorobutadiene	87-68-3	110	U	110	43.86
10949	2-Hexanone	591-78-6	160	U	160	43.86
10949	Isopropylbenzene	98-82-8	53	U	53	43.86
10949	p-Isopropyltoluene	99-87-6	53	U	53	43.86
10949	Methyl Acetate	79-20-9	130	J	110	43.86
10949	Methyl Tertiary Butyl Ether	1634-04-4	26	U	26	43.86
10949	4-Methyl-2-pentanone	108-10-1	160	U	160	43.86
10949	Methylcyclohexane	108-87-2	53	U	53	43.86
10949	Methylene Chloride	75-09-2	110	U	110	43.86
10949	Naphthalene	91-20-3	53	U	53	43.86
10949	n-Propylbenzene	103-65-1	53	U	53	43.86
10949	Styrene	100-42-5	53	U	53	43.86
10949	1,1,1,2-Tetrachloroethane	630-20-6	53	U	53	43.86
10949	1,1,2,2-Tetrachloroethane	79-34-5	53	U	53	43.86
10949	Tetrachloroethene	127-18-4	53	U	53	43.86
10949	Toluene	108-88-3	53	U	53	43.86
10949	1,2,3-Trichlorobenzene	87-61-6	53	U	53	43.86
10949	1,2,4-Trichlorobenzene	120-82-1	53	U	53	43.86
10949	1,1,1-Trichloroethane	71-55-6	53	U	53	43.86
10949	1,1,2-Trichloroethane	79-00-5	53	U	53	43.86
10949	Trichloroethene	79-01-6	53	U	53	43.86
10949	Trichlorofluoromethane	75-69-4	110	U	110	43.86
10949	1,2,3-Trichloropropane	96-18-4	53	U	53	43.86
10949	1,2,4-Trimethylbenzene	95-63-6	53	U	53	43.86
10949	1,3,5-Trimethylbenzene	108-67-8	53	U	53	43.86
10949	Vinyl Acetate	108-05-4	110	U	110	43.86
10949	Vinyl Chloride	75-01-4	53	U	53	43.86
10949	m+p-Xylene	179601-23-1	53	U	53	43.86
10949	o-Xylene	95-47-6	53	U	53	43.86

Reporting limits were raised due to interference from the sample matrix.

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 1,2,3-trichlorobenzene.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	5	J	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1

Sample Description: HGR-IDW-S1 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6503455
LLI Group # 1281639
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/16/2011 11:11 by BW

Submitted: 12/17/2011 09:45
Reported: 12/30/2011 16:10

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

--S1- SDG#: DHR12-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C			**ug/kg**		**ug/kg**	
10727	Anthracene	120-12-7	8	J	4	1
10727	Benzo(a)anthracene	56-55-3	40		4	1
10727	Benzo(a)pyrene	50-32-8	43		4	1
10727	Benzo(b)fluoranthene	205-99-2	66		4	1
10727	Benzo(g,h,i)perylene	191-24-2	43		4	1
10727	Benzo(k)fluoranthene	207-08-9	26		4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	20	U	20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	80	U	80	1
10727	Di-n-butylphthalate	84-74-2	80	U	80	1
10727	Carbazole	86-74-8	20	U	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	8	U	8	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	52		4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	20	U	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1
10727	Diethylphthalate	84-66-2	80	U	80	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	80	U	80	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1
10727	2,4-Dinitrophenol	51-28-5	400	U	400	1
10727	2,4-Dinitrotoluene	121-14-2	80	U	80	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	80	U	80	1
10727	Fluoranthene	206-44-0	94		4	1
10727	Fluorene	86-73-7	7	J	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	40	U	40	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	34		4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	5	J	4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	80	U	80	1
10727	4-Nitroaniline	100-01-6	80	U	80	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1

Sample Description: HGR-IDW-S1 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6503455
LLI Group # 1281639
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/16/2011 11:11 by BW

Submitted: 12/17/2011 09:45
Reported: 12/30/2011 16:10

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

--S1- SDG#: DHR12-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	80	U	80	1
10727	Pentachlorophenol	87-86-5	40	U	40	1
10727	Phenanthrene	85-01-8	64		4	1
10727	Phenol	108-95-2	20	U	20	1
10727	Pyrene	129-00-0	84		4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
Wet Chemistry	**SM20 2540 G**		**%**		**%**	
00111	Moisture	n.a.	16.8		0.50	1
	"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.					

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	R113632AA	12/30/2011 02:15	Stephanie A Selis	43.86
10949	8260 Ext. Soil Master	SW-846 8260B	2	R113632AA	12/30/2011 06:36	Stephanie A Selis	43.86
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201135126470	12/17/2011 12:34	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201135126470	12/17/2011 12:34	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201135126470	12/17/2011 12:33	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11353SLC026	12/21/2011 11:59	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11353SLC026	12/20/2011 13:00	Olivia I Santiago	1
00111	Moisture	SM20 2540 G	1	11355820003B	12/21/2011 20:02	Scott W Freisher	1

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Analysis Report

Sample Description: HGR-IDW-S2 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6503456
LLI Group # 1281639
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/16/2011 11:30 by BW

Submitted: 12/17/2011 09:45
Reported: 12/30/2011 16:10

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

--S2- SDG#: DHR12-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	49		7	0.9
10949	Benzene	71-43-2	0.5	U	0.5	0.9
10949	Bromobenzene	108-86-1	1	U	1	0.9
10949	Bromochloromethane	74-97-5	1	U	1	0.9
10949	Bromodichloromethane	75-27-4	1	U	1	0.9
10949	Bromoform	75-25-2	1	U	1	0.9
10949	Bromomethane	74-83-9	2	U	2	0.9
10949	2-Butanone	78-93-3	6	J	4	0.9
10949	n-Butylbenzene	104-51-8	1	U	1	0.9
10949	sec-Butylbenzene	135-98-8	1	U	1	0.9
10949	tert-Butylbenzene	98-06-6	1	U	1	0.9
10949	Carbon Disulfide	75-15-0	1	U	1	0.9
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.9
10949	Chlorobenzene	108-90-7	1	U	1	0.9
10949	Chloroethane	75-00-3	2	U	2	0.9
10949	Chloroform	67-66-3	1	U	1	0.9
10949	Chloromethane	74-87-3	2	U	2	0.9
10949	2-Chlorotoluene	95-49-8	1	U	1	0.9
10949	4-Chlorotoluene	106-43-4	1	U	1	0.9
10949	Cyclohexane	110-82-7	1	U	1	0.9
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.9
10949	Dibromochloromethane	124-48-1	1	U	1	0.9
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.9
10949	Dibromomethane	74-95-3	1	U	1	0.9
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.9
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.9
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.9
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.9
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.9
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.9
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.9
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.9
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.9
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.9
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.9
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.9
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.9
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.9
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.9
10949	Ethylbenzene	100-41-4	46		1	0.9
10949	Freon 113	76-13-1	2	U	2	0.9
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.9
10949	2-Hexanone	591-78-6	3	U	3	0.9
10949	Isopropylbenzene	98-82-8	2	J	1	0.9
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.9
10949	Methyl Acetate	79-20-9	2	U	2	0.9
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.9
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.9
10949	Methylcyclohexane	108-87-2	1	U	1	0.9
10949	Methylene Chloride	75-09-2	2	U	2	0.9
10949	Naphthalene	91-20-3	1	U	1	0.9

Sample Description: HGR-IDW-S2 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6503456
LLI Group # 1281639
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/16/2011 11:30 by BW

Submitted: 12/17/2011 09:45
Reported: 12/30/2011 16:10

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

--S2- SDG#: DHR12-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.9
10949	Styrene	100-42-5	1	U	1	0.9
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.9
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.9
10949	Tetrachloroethene	127-18-4	1	U	1	0.9
10949	Toluene	108-88-3	1	U	1	0.9
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.9
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.9
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.9
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.9
10949	Trichloroethene	79-01-6	1	U	1	0.9
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.9
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.9
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.9
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.9
10949	Vinyl Acetate	108-05-4	2	U	2	0.9
10949	Vinyl Chloride	75-01-4	1	U	1	0.9
10949	m+p-Xylene	179601-23-1	1	U	1	0.9
10949	o-Xylene	95-47-6	1	U	1	0.9
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	9	J	4	1
10727	Acenaphthylene	208-96-8	5	J	4	1
10727	Anthracene	120-12-7	7	J	4	1
10727	Benzo(a)anthracene	56-55-3	20	J	4	1
10727	Benzo(a)pyrene	50-32-8	21		4	1
10727	Benzo(b)fluoranthene	205-99-2	29		4	1
10727	Benzo(g,h,i)perylene	191-24-2	22		4	1
10727	Benzo(k)fluoranthene	207-08-9	12	J	4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	280		20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	79	U	79	1
10727	Di-n-butylphthalate	84-74-2	79	U	79	1
10727	Carbazole	86-74-8	20	U	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	8	U	8	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	22		4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	20	U	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1
10727	Diethylphthalate	84-66-2	79	U	79	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	79	U	79	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1

Sample Description: HGR-IDW-S2 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6503456
LLI Group # 1281639
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/16/2011 11:30 by BW

Submitted: 12/17/2011 09:45
Reported: 12/30/2011 16:10

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

--S2- SDG#: DHR12-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	390	U	390	1
10727	2,4-Dinitrotoluene	121-14-2	79	U	79	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	79	U	79	1
10727	Fluoranthene	206-44-0	50		4	1
10727	Fluorene	86-73-7	5	J	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	39	U	39	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	16	J	4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	10	J	4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	79	U	79	1
10727	4-Nitroaniline	100-01-6	79	U	79	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	79	U	79	1
10727	Pentachlorophenol	87-86-5	39	U	39	1
10727	Phenanthrene	85-01-8	55		4	1
10727	Phenol	108-95-2	20	U	20	1
10727	Pyrene	129-00-0	44		4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
Wet Chemistry	**SM20 2540 G**		**%**		**%**	
00111	Moisture	n.a.	15.5		0.50	1
	"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.					

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Sample Description: HGR-IDW-S2 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6503456
LLI Group # 1281639
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/16/2011 11:30 by BW

Submitted: 12/17/2011 09:45
Reported: 12/30/2011 16:10

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

--S2- SDG#: DHR12-04

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113631AA	12/29/2011 15:40	Emily R Styer	0.9
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201135126470	12/17/2011 12:35	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201135126470	12/17/2011 12:36	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201135126470	12/17/2011 12:35	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11353SLC026	12/21/2011 12:24	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11353SLC026	12/20/2011 13:00	Olivia I Santiago	1
00111	Moisture	SM20 2540 G	1	11355820003B	12/21/2011 20:02	Scott W Freisher	1

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Analysis Report

Sample Description: HGR-IDW-S3 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6503457
LLI Group # 1281639
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/16/2011 11:45 by BW

Submitted: 12/17/2011 09:45
Reported: 12/30/2011 16:10

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

--S3- SDG#: DHR12-05*

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	45		8	0.88
10949	Benzene	71-43-2	0.5	U	0.5	0.88
10949	Bromobenzene	108-86-1	1	U	1	0.88
10949	Bromochloromethane	74-97-5	1	U	1	0.88
10949	Bromodichloromethane	75-27-4	1	U	1	0.88
10949	Bromoform	75-25-2	1	U	1	0.88
10949	Bromomethane	74-83-9	2	U	2	0.88
10949	2-Butanone	78-93-3	8	J	4	0.88
10949	n-Butylbenzene	104-51-8	1	U	1	0.88
10949	sec-Butylbenzene	135-98-8	1	U	1	0.88
10949	tert-Butylbenzene	98-06-6	1	U	1	0.88
10949	Carbon Disulfide	75-15-0	6		1	0.88
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.88
10949	Chlorobenzene	108-90-7	1	U	1	0.88
10949	Chloroethane	75-00-3	2	U	2	0.88
10949	Chloroform	67-66-3	1	U	1	0.88
10949	Chloromethane	74-87-3	2	U	2	0.88
10949	2-Chlorotoluene	95-49-8	1	U	1	0.88
10949	4-Chlorotoluene	106-43-4	1	U	1	0.88
10949	Cyclohexane	110-82-7	1	U	1	0.88
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.88
10949	Dibromochloromethane	124-48-1	1	U	1	0.88
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.88
10949	Dibromomethane	74-95-3	1	U	1	0.88
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.88
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.88
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.88
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.88
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.88
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.88
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.88
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.88
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.88
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.88
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.88
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.88
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.88
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.88
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.88
10949	Ethylbenzene	100-41-4	1	U	1	0.88
10949	Freon 113	76-13-1	2	U	2	0.88
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.88
10949	2-Hexanone	591-78-6	3	U	3	0.88
10949	Isopropylbenzene	98-82-8	2	J	1	0.88
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.88
10949	Methyl Acetate	79-20-9	2	U	2	0.88
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.88
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.88
10949	Methylcyclohexane	108-87-2	1	U	1	0.88
10949	Methylene Chloride	75-09-2	2	U	2	0.88
10949	Naphthalene	91-20-3	1	U	1	0.88

Sample Description: HGR-IDW-S3 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6503457
LLI Group # 1281639
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/16/2011 11:45 by BW

Submitted: 12/17/2011 09:45
Reported: 12/30/2011 16:10

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

--S3- SDG#: DHR12-05*

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.88
10949	Styrene	100-42-5	1	U	1	0.88
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.88
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.88
10949	Tetrachloroethene	127-18-4	30		1	0.88
10949	Toluene	108-88-3	1	U	1	0.88
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.88
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.88
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.88
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.88
10949	Trichloroethene	79-01-6	1	J	1	0.88
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.88
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.88
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.88
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.88
10949	Vinyl Acetate	108-05-4	2	U	2	0.88
10949	Vinyl Chloride	75-01-4	1	U	1	0.88
10949	m+p-Xylene	179601-23-1	1	U	1	0.88
10949	o-Xylene	95-47-6	1	U	1	0.88
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	6	J	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	12	J	4	1
10727	Benzo(a)pyrene	50-32-8	14	J	4	1
10727	Benzo(b)fluoranthene	205-99-2	20	J	4	1
10727	Benzo(g,h,i)perylene	191-24-2	17	J	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	210	U	210	1
10727	1,1'-Biphenyl	92-52-4	21	U	21	1
10727	4-Bromophenyl-phenylether	101-55-3	21	U	21	1
10727	Butylbenzylphthalate	85-68-7	83	U	83	1
10727	Di-n-butylphthalate	84-74-2	83	U	83	1
10727	Carbazole	86-74-8	21	U	21	1
10727	4-Chloro-3-methylphenol	59-50-7	21	U	21	1
10727	4-Chloroaniline	106-47-8	21	U	21	1
10727	bis(2-Chloroethoxy)methane	111-91-1	21	U	21	1
10727	bis(2-Chloroethyl)ether	111-44-4	21	U	21	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	21	U	21	1
10727	4-Chlorophenyl-phenylether	7005-72-3	21	U	21	1
10727	Chrysene	218-01-9	16	J	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	21	U	21	1
10727	3,3'-Dichlorobenzidine	91-94-1	130	U	130	1
10727	2,4-Dichlorophenol	120-83-2	21	U	21	1
10727	Diethylphthalate	84-66-2	83	U	83	1
10727	2,4-Dimethylphenol	105-67-9	21	U	21	1
10727	Dimethylphthalate	131-11-3	83	U	83	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	210	U	210	1

Sample Description: HGR-IDW-S3 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6503457
LLI Group # 1281639
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/16/2011 11:45 by BW

Submitted: 12/17/2011 09:45
Reported: 12/30/2011 16:10

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

--S3- SDG#: DHR12-05*

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	420	U	420	1
10727	2,4-Dinitrotoluene	121-14-2	83	U	83	1
10727	2,6-Dinitrotoluene	606-20-2	21	U	21	1
10727	1,4-Dioxane	123-91-1	130	U	130	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	83	U	83	1
10727	Fluoranthene	206-44-0	21	J	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	210	U	210	1
10727	Hexachloroethane	67-72-1	42	U	42	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	11	J	4	1
10727	Isophorone	78-59-1	21	U	21	1
10727	2-Methylnaphthalene	91-57-6	22		4	1
10727	2-Methylphenol	95-48-7	21	U	21	1
10727	4-Methylphenol	106-44-5	21	U	21	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	21	U	21	1
10727	3-Nitroaniline	99-09-2	83	U	83	1
10727	4-Nitroaniline	100-01-6	83	U	83	1
10727	Nitrobenzene	98-95-3	21	U	21	1
10727	2-Nitrophenol	88-75-5	21	U	21	1
10727	4-Nitrophenol	100-02-7	210	U	210	1
10727	N-Nitroso-di-n-propylamine	621-64-7	21	U	21	1
10727	N-Nitrosodiphenylamine	86-30-6	21	U	21	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	83	U	83	1
10727	Pentachlorophenol	87-86-5	42	U	42	1
10727	Phenanthrene	85-01-8	22		4	1
10727	Phenol	108-95-2	21	U	21	1
10727	Pyrene	129-00-0	20	J	4	1
10727	2,4,5-Trichlorophenol	95-95-4	21	U	21	1
10727	2,4,6-Trichlorophenol	88-06-2	21	U	21	1
Wet Chemistry	**SM20 2540 G**		**%**		**%**	
00111	Moisture	n.a.	20.1		0.50	1
	"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.					

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Sample Description: HGR-IDW-S3 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6503457
LLI Group # 1281639
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/16/2011 11:45 by BW

Submitted: 12/17/2011 09:45
Reported: 12/30/2011 16:10

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

--S3- SDG#: DHR12-05*

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113631AA	12/29/2011 16:03	Emily R Styer	0.88
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201135126470	12/17/2011 12:38	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201135126470	12/17/2011 12:38	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201135126470	12/17/2011 12:37	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11353SLC026	12/21/2011 12:48	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11353SLC026	12/20/2011 13:00	Olivia I Santiago	1
00111	Moisture	SM20 2540 G	1	11355820003B	12/21/2011 20:02	Scott W Freisher	1

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1281639
Reported: 12/30/11 at 04:10 PM

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: A113631AA	Sample number(s): 6503456-6503457								
Acetone	7	U	7.	ug/kg	102	85	32-209	18	30
Benzene	0.5	U	0.5	ug/kg	92	91	80-120	1	30
Bromobenzene	1	U	1.	ug/kg	99	98	79-120	1	30
Bromochloromethane	1	U	1.	ug/kg	94	92	79-124	3	30
Bromodichloromethane	1	U	1.	ug/kg	93	90	78-120	3	30
Bromoform	1	U	1.	ug/kg	95	88	70-120	7	30
Bromomethane	2	U	2.	ug/kg	94	92	32-162	3	30
2-Butanone	4	U	4.	ug/kg	116	100	46-153	15	30
n-Butylbenzene	1	U	1.	ug/kg	98	98	72-120	0	30
sec-Butylbenzene	1	U	1.	ug/kg	102	102	75-120	0	30
tert-Butylbenzene	1	U	1.	ug/kg	98	97	75-120	1	30
Carbon Disulfide	1	U	1.	ug/kg	85	85	67-122	0	30
Carbon Tetrachloride	1	U	1.	ug/kg	97	94	69-122	3	30
Chlorobenzene	1	U	1.	ug/kg	97	96	80-120	1	30
Chloroethane	2	U	2.	ug/kg	91	87	37-154	4	30
Chloroform	1	U	1.	ug/kg	98	95	80-120	3	30
Chloromethane	2	U	2.	ug/kg	81	80	54-132	1	30
2-Chlorotoluene	1	U	1.	ug/kg	95	96	78-120	1	30
4-Chlorotoluene	1	U	1.	ug/kg	98	99	79-120	1	30
Cyclohexane	1	U	1.	ug/kg	96	94	62-121	1	30
1,2-Dibromo-3-chloropropane	2	U	2.	ug/kg	108	94	58-120	14	30
Dibromochloromethane	1	U	1.	ug/kg	95	91	77-120	4	30
1,2-Dibromoethane	1	U	1.	ug/kg	100	93	80-120	6	30
Dibromomethane	1	U	1.	ug/kg	91	87	80-120	5	30
1,2-Dichlorobenzene	1	U	1.	ug/kg	96	96	79-120	0	30
1,3-Dichlorobenzene	1	U	1.	ug/kg	99	98	78-120	0	30
1,4-Dichlorobenzene	1	U	1.	ug/kg	98	97	79-120	1	30
Dichlorodifluoromethane	2	U	2.	ug/kg	81	80	20-120	1	30
1,1-Dichloroethane	1	U	1.	ug/kg	99	98	80-120	1	30
1,2-Dichloroethane	1	U	1.	ug/kg	112	108	71-129	4	30
1,1-Dichloroethene	1	U	1.	ug/kg	89	90	73-123	1	30
cis-1,2-Dichloroethene	1	U	1.	ug/kg	89	89	80-120	1	30
trans-1,2-Dichloroethene	1	U	1.	ug/kg	91	89	79-120	2	30
1,2-Dichloropropane	1	U	1.	ug/kg	90	88	80-120	3	30
1,3-Dichloropropane	1	U	1.	ug/kg	99	96	80-120	4	30
2,2-Dichloropropane	1	U	1.	ug/kg	95	93	72-123	2	30
1,1-Dichloropropene	1	U	1.	ug/kg	96	95	77-120	1	30
cis-1,3-Dichloropropene	1	U	1.	ug/kg	87	84	80-120	3	30
trans-1,3-Dichloropropene	1	U	1.	ug/kg	95	93	77-120	2	30
Ethylbenzene	1	U	1.	ug/kg	100	100	80-120	0	30
Freon 113	2	U	2.	ug/kg	93	92	61-126	1	30
Hexachlorobutadiene	2	U	2.	ug/kg	102	102	57-120	1	30
2-Hexanone	3	U	3.	ug/kg	107	93	45-155	14	30
Isopropylbenzene	1	U	1.	ug/kg	103	102	76-120	1	30
p-Isopropyltoluene	1	U	1.	ug/kg	102	102	75-120	0	30

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1281639
Reported: 12/30/11 at 04:10 PM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Methyl Acetate	2	U	2.	ug/kg	124	108	61-152	13	30
Methyl Tertiary Butyl Ether	0.5	U	0.5	ug/kg	98	95	74-121	3	30
4-Methyl-2-pentanone	3	U	3.	ug/kg	115	99	61-134	14	30
Methylcyclohexane	1	U	1.	ug/kg	98	96	57-138	2	30
Methylene Chloride	2	U	2.	ug/kg	88	89	76-124	0	30
Naphthalene	1	U	1.	ug/kg	99	94	59-123	5	30
n-Propylbenzene	1	U	1.	ug/kg	103	103	77-120	0	30
Styrene	1	U	1.	ug/kg	100	99	76-120	1	30
1,1,1,2-Tetrachloroethane	1	U	1.	ug/kg	97	97	80-120	0	30
1,1,2,2-Tetrachloroethane	1	U	1.	ug/kg	94	87	71-123	8	30
Tetrachloroethene	1	U	1.	ug/kg	101	100	77-120	1	30
Toluene	1	U	1.	ug/kg	96	96	80-120	1	30
1,2,3-Trichlorobenzene	1	U	1.	ug/kg	99	98	64-120	1	30
1,2,4-Trichlorobenzene	1	U	1.	ug/kg	94	95	68-120	2	30
1,1,1-Trichloroethane	1	U	1.	ug/kg	100	96	71-125	4	30
1,1,2-Trichloroethane	1	U	1.	ug/kg	96	91	80-120	6	30
Trichloroethene	1	U	1.	ug/kg	92	89	80-120	4	30
Trichlorofluoromethane	2	U	2.	ug/kg	110	106	58-133	4	30
1,2,3-Trichloropropane	1	U	1.	ug/kg	100	89	71-123	11	30
1,2,4-Trimethylbenzene	1	U	1.	ug/kg	100	101	79-120	1	30
1,3,5-Trimethylbenzene	1	U	1.	ug/kg	102	102	78-120	0	30
Vinyl Acetate	2	U	2.	ug/kg	100	97	56-137	3	30
Vinyl Chloride	1	U	1.	ug/kg	83	82	53-120	1	30
m+p-Xylene	1	U	1.	ug/kg	98	98	80-120	1	30
o-Xylene	1	U	1.	ug/kg	96	95	80-120	1	30
Batch number: M113551AA	Sample number(s): 6503453-6503454								
Acrolein	10	U	10.	ug/l	88	91	53-126	3	30
Acrylonitrile	10	U	10.	ug/l	80	80	61-120	0	30
Benzene	0.9	U	0.9	ug/l	105	105	80-121	0	30
Bromodichloromethane	0.7	U	0.7	ug/l	108	108	76-123	0	30
Bromoform	0.8	U	0.8	ug/l	97	95	63-123	2	30
Bromomethane	2	U	2.	ug/l	83	85	61-128	3	30
Carbon Tetrachloride	1	U	1.	ug/l	75	76	75-121	1	30
Chlorobenzene	0.8	U	0.8	ug/l	93	92	80-120	1	30
Chloroethane	2	U	2.	ug/l	77	78	61-128	2	30
2-Chloroethyl Vinyl Ether	2	U	2.	ug/l	86	88	47-128	2	30
Chloroform	1	U	1.	ug/l	84	84	80-125	1	30
Chloromethane	2	U	2.	ug/l	85	89	63-135	5	30
Dibromochloromethane	1	U	1.	ug/l	96	95	74-121	1	30
1,2-Dichlorobenzene	1	U	1.	ug/l	94	94	78-125	0	30
1,3-Dichlorobenzene	1	U	1.	ug/l	95	95	78-124	0	30
1,4-Dichlorobenzene	1	U	1.	ug/l	95	95	78-124	1	30
1,1-Dichloroethane	1	U	1.	ug/l	84	84	75-130	0	30
1,2-Dichloroethane	1	U	1.	ug/l	106	106	72-138	0	30
1,1-Dichloroethene	0.9	U	0.9	ug/l	81	81	77-129	0	30
cis-1,2-Dichloroethene	1	U	1.	ug/l	86	84	78-125	2	30
trans-1,2-Dichloroethene	1	U	1.	ug/l	84	84	79-125	0	30
1,2-Dichloropropane	1	U	1.	ug/l	106	104	78-121	1	30
cis-1,3-Dichloropropene	1	U	1.	ug/l	88	96	79-120	9	30
trans-1,3-Dichloropropene	0.6	U	0.6	ug/l	91	96	74-120	5	30
Ethylbenzene	0.8	U	0.8	ug/l	96	95	80-120	1	30
Methylene Chloride	2	U	2.	ug/l	87	86	77-128	1	30
1,1,2,2-Tetrachloroethane	1	U	1.	ug/l	97	97	80-120	0	30
Tetrachloroethene	1	U	1.	ug/l	94	94	77-127	0	30
Toluene	0.8	U	0.8	ug/l	96	96	80-120	1	30
1,1,1-Trichloroethane	1	U	1.	ug/l	77	78	74-127	1	30
1,1,2-Trichloroethane	1	U	1.	ug/l	95	94	80-120	1	30

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1281639
Reported: 12/30/11 at 04:10 PM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Trichloroethene	1	U	1.	ug/l	101	102	80-120	1	30
Trichlorofluoromethane	2	U	2.	ug/l	84	85	67-124	1	30
Vinyl Chloride	2	U	2.	ug/l	87	89	62-129	3	30
Batch number: R113632AA	Sample number(s): 6503455								
Acetone	350	U	350.	ug/kg	74	78	32-209	6	30
Benzene	25	U	25.	ug/kg	102	105	80-120	3	30
Bromobenzene	50	U	50.	ug/kg	97	100	79-120	3	30
Bromochloromethane	50	U	50.	ug/kg	109	111	79-124	2	30
Bromodichloromethane	50	U	50.	ug/kg	92	94	78-120	2	30
Bromoform	50	U	50.	ug/kg	80	84	70-120	4	30
Bromomethane	100	U	100.	ug/kg	78	75	32-162	4	30
2-Butanone	200	U	200.	ug/kg	75	81	46-153	7	30
n-Butylbenzene	50	U	50.	ug/kg	90	93	72-120	4	30
sec-Butylbenzene	50	U	50.	ug/kg	88	91	75-120	2	30
tert-Butylbenzene	50	U	50.	ug/kg	90	91	75-120	1	30
Carbon Disulfide	50	U	50.	ug/kg	101	101	67-122	0	30
Carbon Tetrachloride	50	U	50.	ug/kg	88	87	69-122	0	30
Chlorobenzene	50	U	50.	ug/kg	94	95	80-120	1	30
Chloroethane	100	U	100.	ug/kg	124	80	37-154	44*	30
Chloroform	50	U	50.	ug/kg	96	98	80-120	3	30
Chloromethane	100	U	100.	ug/kg	82	77	54-132	6	30
2-Chlorotoluene	50	U	50.	ug/kg	95	95	78-120	0	30
4-Chlorotoluene	50	U	50.	ug/kg	94	98	79-120	4	30
Cyclohexane	50	U	50.	ug/kg	86	82	62-121	5	30
1,2-Dibromo-3-chloropropane	100	U	100.	ug/kg	71	71	58-120	0	30
Dibromochloromethane	50	U	50.	ug/kg	90	91	77-120	2	30
1,2-Dibromoethane	50	U	50.	ug/kg	93	96	80-120	3	30
Dibromomethane	50	U	50.	ug/kg	99	102	80-120	3	30
1,2-Dichlorobenzene	50	U	50.	ug/kg	91	94	79-120	3	30
1,3-Dichlorobenzene	50	U	50.	ug/kg	92	94	78-120	2	30
1,4-Dichlorobenzene	50	U	50.	ug/kg	91	94	79-120	3	30
Dichlorodifluoromethane	100	U	100.	ug/kg	52	44	20-120	18	30
1,1-Dichloroethane	50	U	50.	ug/kg	101	103	80-120	2	30
1,2-Dichloroethane	50	U	50.	ug/kg	93	96	71-129	3	30
1,1-Dichloroethene	50	U	50.	ug/kg	105	104	73-123	1	30
cis-1,2-Dichloroethene	50	U	50.	ug/kg	102	105	80-120	3	30
trans-1,2-Dichloroethene	50	U	50.	ug/kg	104	106	79-120	2	30
1,2-Dichloropropane	50	U	50.	ug/kg	104	107	80-120	3	30
1,3-Dichloropropane	50	U	50.	ug/kg	95	96	80-120	2	30
2,2-Dichloropropane	50	U	50.	ug/kg	93	93	72-123	0	30
1,1-Dichloropropene	50	U	50.	ug/kg	96	93	77-120	2	30
cis-1,3-Dichloropropene	50	U	50.	ug/kg	96	101	80-120	5	30
trans-1,3-Dichloropropene	50	U	50.	ug/kg	91	94	77-120	3	30
Ethylbenzene	50	U	50.	ug/kg	86	87	80-120	1	30
Freon 113	100	U	100.	ug/kg	95	92	61-126	3	30
Hexachlorobutadiene	100	U	100.	ug/kg	75	77	57-120	3	30
2-Hexanone	150	U	150.	ug/kg	71	72	45-155	2	30
Isopropylbenzene	50	U	50.	ug/kg	79	80	76-120	1	30
p-Isopropyltoluene	50	U	50.	ug/kg	89	92	75-120	3	30
Methyl Acetate	100	U	100.	ug/kg	118	118	61-152	1	30
Methyl Tertiary Butyl Ether	25	U	25.	ug/kg	102	105	74-121	3	30
4-Methyl-2-pentanone	150	U	150.	ug/kg	86	87	61-134	1	30
Methylcyclohexane	50	U	50.	ug/kg	87	83	57-138	5	30
Methylene Chloride	100	U	100.	ug/kg	107	112	76-124	4	30
Naphthalene	50	U	50.	ug/kg	61	67	59-123	10	30
n-Propylbenzene	50	U	50.	ug/kg	92	93	77-120	1	30
Styrene	50	U	50.	ug/kg	87	88	76-120	1	30

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1281639
Reported: 12/30/11 at 04:10 PM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
1,1,1,2-Tetrachloroethane	50	U	50.	ug/kg	90	92	80-120	2	30
1,1,2,2-Tetrachloroethane	50	U	50.	ug/kg	97	97	71-123	0	30
Tetrachloroethene	50	U	50.	ug/kg	87	88	77-120	0	30
Toluene	50	U	50.	ug/kg	95	96	80-120	1	30
1,2,3-Trichlorobenzene	50	U	50.	ug/kg	59*	72	64-120	19	30
1,2,4-Trichlorobenzene	50	U	50.	ug/kg	71	82	68-120	15	30
1,1,1-Trichloroethane	50	U	50.	ug/kg	92	93	71-125	1	30
1,1,2-Trichloroethane	50	U	50.	ug/kg	97	96	80-120	1	30
Trichloroethene	50	U	50.	ug/kg	95	96	80-120	1	30
Trichlorofluoromethane	100	U	100.	ug/kg	75	67	58-133	12	30
1,2,3-Trichloropropane	50	U	50.	ug/kg	92	92	71-123	0	30
1,2,4-Trimethylbenzene	50	U	50.	ug/kg	88	91	79-120	3	30
1,3,5-Trimethylbenzene	50	U	50.	ug/kg	88	89	78-120	1	30
Vinyl Acetate	100	U	100.	ug/kg	105	103	56-137	1	30
Vinyl Chloride	50	U	50.	ug/kg	84	76	53-120	9	30
m+p-Xylene	50	U	50.	ug/kg	88	91	80-120	3	30
o-Xylene	50	U	50.	ug/kg	88	89	80-120	1	30
Batch number: 11353SLC026	Sample number(s): 6503455-6503457								
Acenaphthene	3	U	3.	ug/kg	92		83-111		
Acenaphthylene	3	U	3.	ug/kg	105		68-120		
Anthracene	3	U	3.	ug/kg	97		83-111		
Benzo(a)anthracene	3	U	3.	ug/kg	90		82-111		
Benzo(a)pyrene	3	U	3.	ug/kg	100		63-138		
Benzo(b)fluoranthene	3	U	3.	ug/kg	105		61-133		
Benzo(g,h,i)perylene	3	U	3.	ug/kg	96		63-130		
Benzo(k)fluoranthene	3	U	3.	ug/kg	96		71-135		
Benzyl alcohol	170	U	170.	ug/kg	93		68-111		
1,1'-Biphenyl	17	U	17.	ug/kg	93		82-106		
4-Bromophenyl-phenylether	17	U	17.	ug/kg	90		79-117		
Butylbenzylphthalate	67	U	67.	ug/kg	92		77-125		
Di-n-butylphthalate	67	U	67.	ug/kg	99		79-112		
Carbazole	17	U	17.	ug/kg	95		83-111		
4-Chloro-3-methylphenol	17	U	17.	ug/kg	90		74-119		
4-Chloroaniline	17	U	17.	ug/kg	38		10-97		
bis(2-Chloroethoxy)methane	17	U	17.	ug/kg	90		82-113		
bis(2-Chloroethyl)ether	17	U	17.	ug/kg	93		77-115		
2-Chloronaphthalene	7	U	7.	ug/kg	92		50-117		
2-Chlorophenol	17	U	17.	ug/kg	96		83-119		
4-Chlorophenyl-phenylether	17	U	17.	ug/kg	92		79-110		
Chrysene	3	U	3.	ug/kg	88		81-111		
Dibenz(a,h)anthracene	3	U	3.	ug/kg	93		67-129		
Dibenzofuran	17	U	17.	ug/kg	91		85-110		
3,3'-Dichlorobenzidine	100	U	100.	ug/kg	43		17-116		
2,4-Dichlorophenol	17	U	17.	ug/kg	92		87-117		
Diethylphthalate	67	U	67.	ug/kg	95		82-113		
2,4-Dimethylphenol	17	U	17.	ug/kg	95		83-120		
Dimethylphthalate	67	U	67.	ug/kg	95		85-111		
4,6-Dinitro-2-methylphenol	170	U	170.	ug/kg	91		60-113		
2,4-Dinitrophenol	330	U	330.	ug/kg	77		39-126		
2,4-Dinitrotoluene	67	U	67.	ug/kg	94		80-116		
2,6-Dinitrotoluene	17	U	17.	ug/kg	101		79-115		
1,4-Dioxane	100	U	100.	ug/kg	54		38-75		
bis(2-Ethylhexyl)phthalate	67	U	67.	ug/kg	90		75-124		
Fluoranthene	3	U	3.	ug/kg	100		80-113		
Fluorene	3	U	3.	ug/kg	96		81-117		
Hexachlorobenzene	3	U	3.	ug/kg	94		79-115		
Hexachlorocyclopentadiene	170	U	170.	ug/kg	81		64-127		

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1281639
Reported: 12/30/11 at 04:10 PM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Hexachloroethane	33	U	33.	ug/kg	94		76-109		
Indeno(1,2,3-cd)pyrene	3	U	3.	ug/kg	95		64-128		
Isophorone	17	U	17.	ug/kg	91		72-107		
2-Methylnaphthalene	3	U	3.	ug/kg	89		79-110		
2-Methylphenol	17	U	17.	ug/kg	95		80-119		
4-Methylphenol	17	U	17.	ug/kg	87		74-116		
2-Nitroaniline	17	U	17.	ug/kg	95		83-118		
3-Nitroaniline	67	U	67.	ug/kg	88		66-114		
4-Nitroaniline	67	U	67.	ug/kg	67		52-92		
Nitrobenzene	17	U	17.	ug/kg	95		78-122		
2-Nitrophenol	17	U	17.	ug/kg	89		81-114		
4-Nitrophenol	170	U	170.	ug/kg	89		57-131		
N-Nitroso-di-n-propylamine	17	U	17.	ug/kg	87		70-113		
N-Nitrosodiphenylamine	17	U	17.	ug/kg	96		86-112		
Di-n-octylphthalate	67	U	67.	ug/kg	101		65-141		
Pentachlorophenol	33	U	33.	ug/kg	91		50-133		
Phenanthrene	3	U	3.	ug/kg	95		83-109		
Phenol	17	U	17.	ug/kg	93		74-115		
Pyrene	3	U	3.	ug/kg	93		80-121		
2,4,5-Trichlorophenol	17	U	17.	ug/kg	97		84-109		
2,4,6-Trichlorophenol	17	U	17.	ug/kg	94		88-114		
Batch number: 11355WAA625	Sample number(s): 6503454								
Acenaphthene	0.3	U	0.3	ug/l	99	102	75-117	3	30
Acenaphthylene	0.3	U	0.3	ug/l	105	110	75-122	5	30
Anthracene	0.2	U	0.2	ug/l	102	104	75-116	2	30
Benzidine	20	U	20.	ug/l	51	59	16-104	16	30
Benzo(a)anthracene	0.2	U	0.2	ug/l	97	98	76-117	1	30
Benzo(a)pyrene	0.3	U	0.3	ug/l	101	105	69-143	4	30
Benzo(b)fluoranthene	0.3	U	0.3	ug/l	100	101	64-145	1	30
Benzo(g,h,i)perylene	0.2	U	0.2	ug/l	95	100	66-145	4	30
Benzo(k)fluoranthene	0.3	U	0.3	ug/l	96	105	66-145	8	30
4-Bromophenyl-phenylether	0.3	U	0.3	ug/l	101	103	80-112	2	30
Butylbenzylphthalate	0.8	U	0.8	ug/l	110	113	80-125	2	30
Di-n-butylphthalate	0.5	U	0.5	ug/l	103	106	76-120	2	30
4-Chloro-3-methylphenol	0.3	U	0.3	ug/l	93	97	75-113	4	30
bis(2-Chloroethoxy)methane	0.5	U	0.5	ug/l	103	111	69-128	8	30
bis(2-Chloroethyl)ether	0.4	U	0.4	ug/l	95	99	72-114	5	30
bis(2-Chloroisopropyl)ether	0.3	U	0.3	ug/l	87	93	87-134	7	30
2-Chloronaphthalene	0.2	U	0.2	ug/l	122*	118*	57-112	3	30
2-Chlorophenol	0.3	U	0.3	ug/l	89	92	78-118	3	30
4-Chlorophenyl-phenylether	0.3	U	0.3	ug/l	94	99	76-115	5	30
Chrysene	0.2	U	0.2	ug/l	98	101	81-118	3	30
Dibenz(a,h)anthracene	0.4	U	0.4	ug/l	97	100	68-144	3	30
1,2-Dichlorobenzene	0.3	U	0.3	ug/l	83	87	60-111	5	30
1,3-Dichlorobenzene	0.3	U	0.3	ug/l	80	85	67-110	5	30
1,4-Dichlorobenzene	0.3	U	0.3	ug/l	82	84	68-111	3	30
3,3'-Dichlorobenzidine	0.8	U	0.8	ug/l	67	79	33-124	16	30
2,4-Dichlorophenol	0.3	U	0.3	ug/l	98	101	72-127	4	30
Diethylphthalate	0.3	U	0.3	ug/l	98	100	74-120	3	30
2,4-Dimethylphenol	0.3	U	0.3	ug/l	95	97	70-123	2	30
Dimethylphthalate	1	U	1.	ug/l	75	76	52-122	2	30
4,6-Dinitro-2-methylphenol	4	U	4.	ug/l	104	105	65-120	1	30
2,4-Dinitrophenol	10	U	10.	ug/l	97	101	64-140	4	30
2,4-Dinitrotoluene	0.4	U	0.4	ug/l	101	104	74-121	3	30
2,6-Dinitrotoluene	0.3	U	0.3	ug/l	100	105	80-115	5	30
1,2-Diphenylhydrazine	0.2	U	0.2	ug/l	105	108	75-114	2	30
bis(2-Ethylhexyl)phthalate	1	U	1.	ug/l	108	111	74-118	2	30

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1281639
Reported: 12/30/11 at 04:10 PM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Fluoranthene	0.3	U	0.3	ug/l	100	102	86-119	2	30
Fluorene	0.3	U	0.3	ug/l	99	102	74-117	3	30
Hexachlorobenzene	1	U	1.	ug/l	96	98	75-114	2	30
Hexachlorobutadiene	0.8	U	0.8	ug/l	91	95	58-116	5	30
Hexachlorocyclopentadiene	2	U	2.	ug/l	68	79	38-133	15	30
Hexachloroethane	0.4	U	0.4	ug/l	87	89	44-113	3	30
Indeno(1,2,3-cd)pyrene	0.3	U	0.3	ug/l	95	99	67-143	4	30
Isophorone	0.3	U	0.3	ug/l	99	107	75-123	8	30
Naphthalene	0.2	U	0.2	ug/l	96	99	73-118	3	30
Nitrobenzene	0.5	U	0.5	ug/l	101	106	74-121	4	30
2-Nitrophenol	0.4	U	0.4	ug/l	102	106	77-120	4	30
4-Nitrophenol	5	U	5.	ug/l	43	44	27-80	1	30
N-Nitroso-di-n-propylamine	0.4	U	0.4	ug/l	91	96	68-114	6	30
N-Nitrosodimethylamine	2	U	2.	ug/l	59	60	44-81	2	30
N-Nitrosodiphenylamine	0.3	U	0.3	ug/l	104	107	84-135	3	30
Di-n-octylphthalate	0.5	U	0.5	ug/l	117	121	65-155	4	30
Pentachlorophenol	3	U	3.	ug/l	82	82	55-137	1	30
Phenanthrene	0.2	U	0.2	ug/l	98	100	77-113	2	30
Phenol	0.4	U	0.4	ug/l	39	42	26-71	7	30
Pyrene	0.2	U	0.2	ug/l	108	110	76-115	3	30
1,2,4-Trichlorobenzene	0.3	U	0.3	ug/l	91	97	70-119	6	30
2,4,6-Trichlorophenol	0.7	U	0.7	ug/l	97	99	83-120	2	30
Batch number: 113555716003	Sample number(s): 6503454								
Chromium	1.1	U	1.1	ug/l	107		90-110		
Copper	0.94	U	0.94	ug/l	107		90-110		
Lead	2.2	U	2.2	ug/l	102		90-110		
Nickel	0.95	U	0.95	ug/l	108		90-111		
Zinc	3.2	U	3.2	ug/l	101		90-110		
Batch number: 11355102101A	Sample number(s): 6503454								
Total Cyanide (water)	0.0050	U	0.0050	mg/l	93		90-110		
Batch number: 11356237301A	Sample number(s): 6503454								
Total Organic Carbon	0.50	U	0.50	mg/l	99		91-113		
Batch number: 11351023501A	Sample number(s): 6503454								
Biochemical Oxygen Demand					77*		85-115		
Batch number: 11354020601A	Sample number(s): 6503454								
Total Suspended Solids	3.0	U	3.0	mg/l	80		80-105		
Batch number: 11361807901A	Sample number(s): 6503454								
HEM (oil & grease)	1.4	J	1.4	mg/l	86	81	78-114	7	16
Batch number: 11355820003B	Sample number(s): 6503455-6503457								
Moisture					100		99-101		

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

	MS	MSD	MS/MSD	RPD	BKG	DUP	DUP	Dup RPD

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1281639

Reported: 12/30/11 at 04:10 PM

Analysis Name	%REC	%REC	Limits	RPD	MAX	Conc	Conc	RPD	Max
Batch number: 11353SLC026	Sample number(s): 6503455-6503457 UNSPK: P501839								
Acenaphthene	72	44	41-135	49*	30				
Acenaphthylene	77	49	47-137	44*	30				
Anthracene	71	45	40-147	44*	30				
Benzo(a)anthracene	67	44	32-150	41*	30				
Benzo(a)pyrene	73	41*	57-129	57*	30				
Benzo(b)fluoranthene	71	44*	53-131	47*	30				
Benzo(g,h,i)perylene	73	43*	60-123	52*	30				
Benzo(k)fluoranthene	70	44*	61-131	45*	30				
Benzyl alcohol	0*	0*	63-128	0	30				
1,1'-Biphenyl	70	44*	51-127	47*	30				
4-Bromophenyl-phenylether	65	44*	46-131	40*	30				
Butylbenzylphthalate	74	47	26-161	45*	30				
Di-n-butylphthalate	73	45	32-139	48*	30				
Carbazole	72	45	36-148	47*	30				
4-Chloro-3-methylphenol	68	43	33-144	46*	30				
4-Chloroaniline	41	25	11-114	47*	30				
bis(2-Chloroethoxy)methane	68	43*	44-132	45*	30				
bis(2-Chloroethyl)ether	73	46	45-139	46*	30				
2-Chloronaphthalene	84	52	22-131	47*	30				
2-Chlorophenol	72	41	29-151	56*	30				
4-Chlorophenyl-phenylether	68	43	42-130	45*	30				
Chrysene	67*	43*	76-114	45*	30				
Dibenz(a,h)anthracene	70	42	37-151	50*	30				
Dibenzofuran	70	44	38-148	46*	30				
3,3'-Dichlorobenzidine	0*	0*	10-143	0	30				
2,4-Dichlorophenol	66	43	35-142	42*	30				
Diethylphthalate	74	45	32-137	49*	30				
2,4-Dimethylphenol	69	41	27-143	51*	30				
Dimethylphthalate	71	43	26-141	49*	30				
4,6-Dinitro-2-methylphenol	0*	0*	10-148	0	30				
2,4-Dinitrophenol	118	107	20-143	9	30				
2,4-Dinitrotoluene	67	0*	27-147	200*	30				
2,6-Dinitrotoluene	64	40*	44-140	47*	30				
1,4-Dioxane	0*	0*	31-77	0	30				
bis(2-Ethylhexyl)phthalate	72	44	38-151	47*	30				
Fluoranthene	77	47*	48-122	49*	30				
Fluorene	74	47	35-140	44*	30				
Hexachlorobenzene	69	44*	53-137	43*	30				
Hexachlorocyclopentadiene	0*	0*	10-153	0	30				
Hexachloroethane	66*	38*	71-104	54*	30				
Indeno(1,2,3-cd)pyrene	69	40*	61-123	55*	30				
Isophorone	67	44*	54-122	41*	30				
2-Methylnaphthalene	67	44	23-141	41*	30				
2-Methylphenol	78	47	30-145	49*	30				
4-Methylphenol	68	43	36-149	45*	30				
2-Nitroaniline	67	39*	46-146	53*	30				
3-Nitroaniline	54	0*	34-134	200*	30				
4-Nitroaniline	46	0*	26-124	200*	30				
Nitrobenzene	74	49	37-139	41*	30				
2-Nitrophenol	63	38	25-151	50*	30				
4-Nitrophenol	0*	0*	15-149	0	30				
N-Nitroso-di-n-propylamine	68	42*	46-128	47*	30				
N-Nitrosodiphenylamine	71	44	33-148	48*	30				
Di-n-octylphthalate	77	46	43-149	51*	30				
Pentachlorophenol	156*	131	23-145	18	30				
Phenanthrene	76	45	34-147	51*	30				
Phenol	72	44	39-151	47*	30				

*- Outside of specification

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1281639
Reported: 12/30/11 at 04:10 PM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Pyrene	67*	46*	76-124	39*	30				
2,4,5-Trichlorophenol	67	46	25-143	38*	30				
2,4,6-Trichlorophenol	68	41	41-142	50*	30				
Batch number: 113555716003	Sample number(s): 6503454 UNSPK: P503411 BKG: P503411								
Chromium	105		81-120			3.0 J	3.0 J	0 (1)	20
Copper	122		86-122			867	881	2	20
Lead	99		70-130			2.2 U	2.2 U	0 (1)	20
Nickel	101		86-115			2.8 J	2.9 J	5 (1)	20
Zinc	101		85-112			11.4 J	10.8 J	5 (1)	20
Batch number: 11355102101A	Sample number(s): 6503454 UNSPK: P503412 BKG: P503412								
Total Cyanide (water)	92		90-110			0.0050 U	0.0050 U	0 (1)	20
Batch number: 11356237301A	Sample number(s): 6503454 UNSPK: P505423 BKG: P505423								
Total Organic Carbon	63		63-142			2.2	2.2	3 (1)	3
Batch number: 11351023501A	Sample number(s): 6503454 UNSPK: P503188 BKG: P502918								
Biochemical Oxygen Demand	106	105	75-139	1	8	7.2	7.4	2 (1)	15
Batch number: 11354020601A	Sample number(s): 6503454 BKG: P504466								
Total Suspended Solids						15.2	41.6	93* (1)	10
Batch number: 11355820003B	Sample number(s): 6503455-6503457 BKG: 6503457								
Moisture						20.1	19.5	3	15

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed
unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 8260 Ext. Soil Master
Batch number: A113631AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
6503456	100	101	104	94
6503457	100	99	105	92
Blank	102	102	102	93
LCS	101	100	106	99
LCSD	100	98	106	99
Limits:	71-114	70-109	70-123	70-111

Analysis Name: EPA 624 water
Batch number: M113551AA

	1,2-Dichloroethane-d4	Fluorobenzene	4-Bromofluorobenzene
6503453	80	103	93
6503454	83	105	93
Blank	80	105	93

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(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1281639
Reported: 12/30/11 at 04:10 PM

Surrogate Quality Control

LCS	82	105	97	
LCSD	81	105	96	
Limits:	76-114	80-120	86-115	

Analysis Name: 8260 Ext. Soil Master
Batch number: R113632AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
6503455	76	80	76	69*
6503455	78	83	78	68*
RE				
Blank	92	97	84	75
LCS	95	96	89	77
LCSD	95	97	88	78
Limits:	71-114	70-109	70-123	70-111

Analysis Name: TCL 8270 (microwave)
Batch number: 11353SLC026

	Phenol-d6	2-Fluorophenol	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
6503455	96	101	91	93	99	104
6503456	97	103	95	94	99	106
6503457	96	102	96	94	104	107
Blank	80	89	85	83	85	94
LCS	93	100	93	88	91	95
MS	77	79	70	69	75	76
MSD	45	44	39	42*	43*	44
Limits:	42-130	39-136	28-139	45-123	56-121	43-124

Analysis Name: Method 625
Batch number: 11355WAA625

	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14	Phenol-d6	2-Fluorophenol	2,4,6-Tribromophenol
6503454	99	99	90	38	60	82
Blank	101	102	91	30	54	92
LCS	100	102	95	37	60	91
LCSD	105	104	95	38	62	93
Limits:	56-120	62-121	56-119	10-72	17-103	36-140

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.

Analysis Request/ Environmental Services Chain of Custody

Lancaster Laboratories

For Lancaster Laboratories use only

Acct. # 11372 Group# 1281639 Sample # 6503453-57 **COC #** 278482

Please print. Instructions on reverse side correspond with circled numbers.

For Lab Use Only
FSC: _____
SCR#: _____

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

(1)
Client: Dow Hanging Rock Acct. #: _____
Project Name/#: 420671.01.FI PWSID #: _____
Project Manager: Mark Holland P.O.#: 420671-04
Sampler: Brian Wachter Quote #: _____
Name of state where samples were collected: Ohio

(2) (3) (4) (5) (6)

Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water (Potable / NPDES)	Other	Total # of Containers	VOCs - Total	SVOCs - Total	Metals - Total	Total Cyanide	BOD	TOC	TCLP VOCs-HOLD	TCLP SVOCs-HOLD	TCLP Metals-HOLD	Remarks	Temperature of samples upon receipt (if requested)
121611 TB	12/15/11	—	X			X		2	X										
HGR-IDW-W1	12/16/11	1100		X		X		9	X	X	X	X	X	X					
HGR-IDW-S1	12/16/11	1115		X	X			8	X	X					X	X	X		
HGR-IDW-S2	12/16/11	1130		X	X			8	X	X					X	X	X		
HGR-IDW-S3	12/16/11	1145		X	X			8	X	X					X	X	X		

[signature] 12/16/11

(7) **Turnaround Time Requested** (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed: _____
Rush results requested by (please circle): Phone Fax E-mail
Phone #: _____ Fax #: _____
E-mail address: _____

(8) **Data Package Options** (please circle if required)
Type I (validation/NJ Reg) TX TRRP-13
Type II (Tier II) MA MCP CT RCP
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)

SDG Complete? Yes No

Site-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate volume.)
Internal COC Required? Yes / No _____

(9)

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	12/16/11	1330			
			[signature]	12-17-11	945

Lancaster Laboratories, Inc., 2425 New Holland Pike, Lancaster, PA 17601 (717) 656-2300 Fax: (717) 656-6766
Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client.

Issued by Dept. 6042 Management
2102.05

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

J estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike sample not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*****	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Analysis Report

ANALYTICAL RESULTS

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425

Prepared for:

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

January 31, 2012

Project: Dow Hanging Rock, OH

Submittal Date: 01/19/2012
Group Number: 1285783
SDG: DHR13
PO Number: 420671-04
Release Number: DHR13
State of Sample Origin: OH

Client Sample Description	Lancaster Labs (LLI) #
S18-SD01 Unspiked Grab Sediment Sample	6526784
S18-SD01 Matrix Spike Grab Sediment Sample	6526785
S18-SD01 Matrix Spike Dup Grab Sediment Sample	6526786
S18-SD01 Duplicate Grab Sediment Sample	6526787
S18-SD02 Grab Sediment Sample	6526788
HGR-011812-FD02 Grab Sediment Sample	6526789
S17-SD01 Grab Sediment Sample	6526790
S18-SD03 Grab Sediment Sample	6526791
S18-SD04 Grab Sediment Sample	6526792
S18-SD05 Grab Sediment Sample	6526793
HGR-011812-TB01 Water Sample	6526794

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Shane Lowe
ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Rachel Grand
1 COPY TO	Data Package Group	

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Questions? Contact your Client Services Representative
Wendy A Kozma at (717) 656-2300 Ext. 1522

Respectfully Submitted,

Lawrence M. Taylor
Senior Specialist

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Analysis Report

Sample Description: S18-SD01 Unspiked Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526784
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 09:45 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S1- SDG#: DHR13-01BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	17	J	10	1
10949	Benzene	71-43-2	0.7	U	0.7	1
10949	Bromobenzene	108-86-1	1	U	1	1
10949	Bromochloromethane	74-97-5	1	U	1	1
10949	Bromodichloromethane	75-27-4	1	U	1	1
10949	Bromoform	75-25-2	1	U	1	1
10949	Bromomethane	74-83-9	3	U	3	1
10949	2-Butanone	78-93-3	6	U	6	1
10949	n-Butylbenzene	104-51-8	1	U	1	1
10949	sec-Butylbenzene	135-98-8	1	U	1	1
10949	tert-Butylbenzene	98-06-6	1	U	1	1
10949	Carbon Disulfide	75-15-0	1	U	1	1
10949	Carbon Tetrachloride	56-23-5	1	U	1	1
10949	Chlorobenzene	108-90-7	1	U	1	1
10949	Chloroethane	75-00-3	3	U	3	1
10949	Chloroform	67-66-3	1	U	1	1
10949	Chloromethane	74-87-3	3	U	3	1
10949	2-Chlorotoluene	95-49-8	1	U	1	1
10949	4-Chlorotoluene	106-43-4	1	U	1	1
10949	Cyclohexane	110-82-7	1	U	1	1
10949	1,2-Dibromo-3-chloropropane	96-12-8	3	U	3	1
10949	Dibromochloromethane	124-48-1	1	U	1	1
10949	1,2-Dibromoethane	106-93-4	1	U	1	1
10949	Dibromomethane	74-95-3	1	U	1	1
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	1
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	1
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	1
10949	Dichlorodifluoromethane	75-71-8	3	U	3	1
10949	1,1-Dichloroethane	75-34-3	1	U	1	1
10949	1,2-Dichloroethane	107-06-2	1	U	1	1
10949	1,1-Dichloroethene	75-35-4	1	U	1	1
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	1
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	1
10949	1,2-Dichloropropane	78-87-5	1	U	1	1
10949	1,3-Dichloropropane	142-28-9	1	U	1	1
10949	2,2-Dichloropropane	594-20-7	1	U	1	1
10949	1,1-Dichloropropene	563-58-6	1	U	1	1
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	1
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	1
10949	Ethylbenzene	100-41-4	1	U	1	1
10949	Freon 113	76-13-1	3	U	3	1
10949	Hexachlorobutadiene	87-68-3	3	U	3	1
10949	2-Hexanone	591-78-6	4	U	4	1
10949	Isopropylbenzene	98-82-8	3	J	1	1
10949	p-Isopropyltoluene	99-87-6	1	U	1	1
10949	Methyl Acetate	79-20-9	3	U	3	1
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.7	U	0.7	1
10949	4-Methyl-2-pentanone	108-10-1	4	U	4	1
10949	Methylcyclohexane	108-87-2	1	U	1	1
10949	Methylene Chloride	75-09-2	3	U	3	1
10949	Naphthalene	91-20-3	1	U	1	1

Sample Description: S18-SD01 Unspiked Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526784
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 09:45 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S1- SDG#: DHR13-01BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	1
10949	Styrene	100-42-5	1	U	1	1
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	1
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	1
10949	Tetrachloroethene	127-18-4	1	U	1	1
10949	Toluene	108-88-3	1	U	1	1
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	1
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	1
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	1
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	1
10949	Trichloroethene	79-01-6	1	U	1	1
10949	Trichlorofluoromethane	75-69-4	3	U	3	1
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	1
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	1
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	1
10949	Vinyl Acetate	108-05-4	3	U	3	1
10949	Vinyl Chloride	75-01-4	1	U	1	1
10949	m+p-Xylene	179601-23-1	1	U	1	1
10949	o-Xylene	95-47-6	1	U	1	1
Trial ID: RE						
10949	Acetone	67-64-1	20	J	10	1.04
10949	Benzene	71-43-2	0.7	U	0.7	1.04
10949	Bromobenzene	108-86-1	1	U	1	1.04
10949	Bromochloromethane	74-97-5	1	U	1	1.04
10949	Bromodichloromethane	75-27-4	1	U	1	1.04
10949	Bromoform	75-25-2	1	U	1	1.04
10949	Bromomethane	74-83-9	3	U	3	1.04
10949	2-Butanone	78-93-3	6	U	6	1.04
10949	n-Butylbenzene	104-51-8	1	U	1	1.04
10949	sec-Butylbenzene	135-98-8	2	J	1	1.04
10949	tert-Butylbenzene	98-06-6	1	U	1	1.04
10949	Carbon Disulfide	75-15-0	1	U	1	1.04
10949	Carbon Tetrachloride	56-23-5	1	U	1	1.04
10949	Chlorobenzene	108-90-7	1	U	1	1.04
10949	Chloroethane	75-00-3	3	U	3	1.04
10949	Chloroform	67-66-3	1	U	1	1.04
10949	Chloromethane	74-87-3	3	U	3	1.04
10949	2-Chlorotoluene	95-49-8	1	U	1	1.04
10949	4-Chlorotoluene	106-43-4	1	U	1	1.04
10949	Cyclohexane	110-82-7	1	U	1	1.04
10949	1,2-Dibromo-3-chloropropane	96-12-8	3	U	3	1.04
10949	Dibromochloromethane	124-48-1	1	U	1	1.04
10949	1,2-Dibromoethane	106-93-4	1	U	1	1.04
10949	Dibromomethane	74-95-3	1	U	1	1.04
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	1.04
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	1.04
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	1.04
10949	Dichlorodifluoromethane	75-71-8	3	U	3	1.04
10949	1,1-Dichloroethane	75-34-3	1	U	1	1.04
10949	1,2-Dichloroethane	107-06-2	1	U	1	1.04

Sample Description: S18-SD01 Unspiked Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526784
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 09:45 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S1- SDG#: DHR13-01BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	1,1-Dichloroethene	75-35-4	1	U	1	1.04
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	1.04
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	1.04
10949	1,2-Dichloropropane	78-87-5	1	U	1	1.04
10949	1,3-Dichloropropane	142-28-9	1	U	1	1.04
10949	2,2-Dichloropropane	594-20-7	1	U	1	1.04
10949	1,1-Dichloropropene	563-58-6	1	U	1	1.04
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	1.04
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	1.04
10949	Ethylbenzene	100-41-4	1	U	1	1.04
10949	Freon 113	76-13-1	3	U	3	1.04
10949	Hexachlorobutadiene	87-68-3	3	U	3	1.04
10949	2-Hexanone	591-78-6	4	U	4	1.04
10949	Isopropylbenzene	98-82-8	4	J	1	1.04
10949	p-Isopropyltoluene	99-87-6	1	U	1	1.04
10949	Methyl Acetate	79-20-9	3	U	3	1.04
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.7	U	0.7	1.04
10949	4-Methyl-2-pentanone	108-10-1	4	U	4	1.04
10949	Methylcyclohexane	108-87-2	1	U	1	1.04
10949	Methylene Chloride	75-09-2	3	U	3	1.04
10949	Naphthalene	91-20-3	1	U	1	1.04
10949	n-Propylbenzene	103-65-1	1	U	1	1.04
10949	Styrene	100-42-5	1	U	1	1.04
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	1.04
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	1.04
10949	Tetrachloroethene	127-18-4	1	U	1	1.04
10949	Toluene	108-88-3	1	U	1	1.04
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	1.04
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	1.04
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	1.04
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	1.04
10949	Trichloroethene	79-01-6	1	U	1	1.04
10949	Trichlorofluoromethane	75-69-4	3	U	3	1.04
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	1.04
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	1.04
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	1.04
10949	Vinyl Acetate	108-05-4	3	U	3	1.04
10949	Vinyl Chloride	75-01-4	1	U	1	1.04
10949	m+p-Xylene	179601-23-1	1	U	1	1.04
10949	o-Xylene	95-47-6	1	U	1	1.04

The GC/MS volatile internal standard peak areas were outside the QC limits. A re-analysis was performed, and the matrix effect was confirmed.

GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	48	U	48	10
10727	Acenaphthylene	208-96-8	70	J	48	10
10727	Anthracene	120-12-7	270		48	10
10727	Benzo(a)anthracene	56-55-3	720		48	10
10727	Benzo(a)pyrene	50-32-8	750		48	10
10727	Benzo(b)fluoranthene	205-99-2	930		48	10

Sample Description: S18-SD01 Unspiked Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526784
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 09:45 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S1- SDG#: DHR13-01BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C			**ug/kg**		**ug/kg**	
10727	Benzo(g,h,i)perylene	191-24-2	560		48	10
10727	Benzo(k)fluoranthene	207-08-9	550		48	10
10727	Benzyl alcohol	100-51-6	2,400	U	2,400	10
10727	1,1'-Biphenyl	92-52-4	1,400		240	10
10727	4-Bromophenyl-phenylether	101-55-3	240	U	240	10
10727	Butylbenzylphthalate	85-68-7	950	U	950	10
10727	Di-n-butylphthalate	84-74-2	950	U	950	10
10727	Carbazole	86-74-8	240	U	240	10
10727	4-Chloro-3-methylphenol	59-50-7	240	U	240	10
10727	4-Chloroaniline	106-47-8	240	U	240	10
10727	bis(2-Chloroethoxy)methane	111-91-1	240	U	240	10
10727	bis(2-Chloroethyl)ether	111-44-4	240	U	240	10
10727	bis(2-Chloroisopropyl)ether	39638-32-9	240	U	240	10
10727	2-Chloronaphthalene	91-58-7	100	U	100	10
10727	2-Chlorophenol	95-57-8	240	U	240	10
10727	4-Chlorophenyl-phenylether	7005-72-3	240	U	240	10
10727	Chrysene	218-01-9	850		48	10
10727	Dibenz(a,h)anthracene	53-70-3	130	J	48	10
10727	Dibenzofuran	132-64-9	240	U	240	10
10727	3,3'-Dichlorobenzidine	91-94-1	1,400	U	1,400	10
10727	2,4-Dichlorophenol	120-83-2	240	U	240	10
10727	Diethylphthalate	84-66-2	950	U	950	10
10727	2,4-Dimethylphenol	105-67-9	240	U	240	10
10727	Dimethylphthalate	131-11-3	950	U	950	10
10727	4,6-Dinitro-2-methylphenol	534-52-1	2,400	U	2,400	10
10727	2,4-Dinitrophenol	51-28-5	4,300	U	4,300	10
10727	2,4-Dinitrotoluene	121-14-2	950	U	950	10
10727	2,6-Dinitrotoluene	606-20-2	240	U	240	10
10727	1,4-Dioxane	123-91-1	1,400	U	1,400	10
10727	bis(2-Ethylhexyl)phthalate	117-81-7	950	U	950	10
10727	Fluoranthene	206-44-0	2,200		48	10
10727	Fluorene	86-73-7	550		48	10
10727	Hexachlorobenzene	118-74-1	48	U	48	10
10727	Hexachlorocyclopentadiene	77-47-4	2,400	U	2,400	10
10727	Hexachloroethane	67-72-1	480	U	480	10
10727	Indeno(1,2,3-cd)pyrene	193-39-5	510		48	10
10727	Isophorone	78-59-1	240	U	240	10
10727	2-Methylnaphthalene	91-57-6	64	J	48	10
10727	2-Methylphenol	95-48-7	240	U	240	10
10727	4-Methylphenol	106-44-5	240	U	240	10
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	240	U	240	10
10727	3-Nitroaniline	99-09-2	950	U	950	10
10727	4-Nitroaniline	100-01-6	950	U	950	10
10727	Nitrobenzene	98-95-3	240	U	240	10
10727	2-Nitrophenol	88-75-5	240	U	240	10
10727	4-Nitrophenol	100-02-7	2,400	U	2,400	10
10727	N-Nitroso-di-n-propylamine	621-64-7	240	U	240	10
10727	N-Nitrosodiphenylamine	86-30-6	240	U	240	10

Sample Description: S18-SD01 Unspiked Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526784
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 09:45 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S1- SDG#: DHR13-01BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	950	U	950	10
10727	Pentachlorophenol	87-86-5	480	U	480	10
10727	Phenanthrene	85-01-8	1,100		48	10
10727	Phenol	108-95-2	240	U	240	10
10727	Pyrene	129-00-0	1,600		48	10
10727	2,4,5-Trichlorophenol	95-95-4	240	U	240	10
10727	2,4,6-Trichlorophenol	88-06-2	240	U	240	10
	Reporting limits were raised due to interference from the sample matrix.					
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	98.5		0.0254	1
06949	Cadmium	7440-43-9	0.709		0.0282	1
06951	Chromium	7440-47-3	46.5		0.198	1
06955	Lead	7439-92-1	33.2		0.311	1
06936	Selenium	7782-49-2	0.960	U	0.960	1
06966	Silver	7440-22-4	0.117	U	0.117	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	6.47		0.113	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0221	J	0.0096	1
Wet Chemistry	**SM20 2540 G**		**%**		**%**	
00111	Moisture	n.a.	29.9		0.50	1
	"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.					

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	B120241AA	01/24/2012 14:02	Chelsea B Eastep	1
10949	8260 Ext. Soil Master	SW-846 8260B	2	B120241AA	01/24/2012 15:54	Chelsea B Eastep	1.04
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	1	201201926615	01/19/2012 21:48	Scott W Freisher	n.a.
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	2	201201926615	01/19/2012 21:48	Scott W Freisher	n.a.

Sample Description: S18-SD01 Unspiked Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526784
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 09:45 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S1- SDG#: DHR13-01BKG

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06646	GC/MS HL Bulk Sample Prep	SW-846 5035A Modified	1	201201926615	01/19/2012 21:18	Scott W Freisher	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	12020SLA026	01/23/2012 14:52	Matthew S Woods	10
10809	BNA Soil Microwave	SW-846 3546	1	12020SLA026	01/20/2012 14:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	120245708001	01/24/2012 23:39	John W Yanzuk II	1
06949	Cadmium	SW-846 6010B	1	120245708001	01/24/2012 23:39	John W Yanzuk II	1
06951	Chromium	SW-846 6010B	1	120245708001	01/24/2012 23:39	John W Yanzuk II	1
06955	Lead	SW-846 6010B	1	120245708001	01/24/2012 23:39	John W Yanzuk II	1
06936	Selenium	SW-846 6010B	1	120245708001	01/24/2012 23:39	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	120245708001	01/24/2012 23:39	John W Yanzuk II	1
06125	Arsenic	SW-846 6020	1	120245708001A	01/26/2012 11:01	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	120255711001	01/25/2012 18:59	Nelli S Markaryan	1
05708	SW SW846 ICP/ICP MS Digest	SW-846 3050B	1	120245708001	01/24/2012 12:28	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	120245711001	01/24/2012 14:40	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	2	120255711001	01/25/2012 12:50	James L Mertz	1
00111	Moisture	SM20 2540 G	1	12025820002B	01/25/2012 18:32	Scott W Freisher	1

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Analysis Report

Sample Description: S18-SD01 Matrix Spike Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526785
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 09:45 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S1- SDG#: DHR13-01MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**	**ug/kg**	
10949	Acetone	67-64-1	270	10	1
10949	Benzene	71-43-2	27	0.7	1
10949	Bromobenzene	108-86-1	20	1	1
10949	Bromochloromethane	74-97-5	27	1	1
10949	Bromodichloromethane	75-27-4	27	1	1
10949	Bromoform	75-25-2	21	1	1
10949	Bromomethane	74-83-9	25	3	1
10949	2-Butanone	78-93-3	220	6	1
10949	n-Butylbenzene	104-51-8	18	1	1
10949	sec-Butylbenzene	135-98-8	20	1	1
10949	tert-Butylbenzene	98-06-6	19	1	1
10949	Carbon Disulfide	75-15-0	24	1	1
10949	Carbon Tetrachloride	56-23-5	30	1	1
10949	Chlorobenzene	108-90-7	22	1	1
10949	Chloroethane	75-00-3	23	3	1
10949	Chloroform	67-66-3	29	1	1
10949	Chloromethane	74-87-3	27	3	1
10949	2-Chlorotoluene	95-49-8	19	1	1
10949	4-Chlorotoluene	106-43-4	19	1	1
10949	Cyclohexane	110-82-7	26	1	1
10949	1,2-Dibromo-3-chloropropane	96-12-8	20	3	1
10949	Dibromochloromethane	124-48-1	24	1	1
10949	1,2-Dibromoethane	106-93-4	24	1	1
10949	Dibromomethane	74-95-3	26	1	1
10949	1,2-Dichlorobenzene	95-50-1	16	1	1
10949	1,3-Dichlorobenzene	541-73-1	17	1	1
10949	1,4-Dichlorobenzene	106-46-7	17	1	1
10949	Dichlorodifluoromethane	75-71-8	30	3	1
10949	1,1-Dichloroethane	75-34-3	29	1	1
10949	1,2-Dichloroethane	107-06-2	32	1	1
10949	1,1-Dichloroethene	75-35-4	27	1	1
10949	cis-1,2-Dichloroethene	156-59-2	27	1	1
10949	trans-1,2-Dichloroethene	156-60-5	26	1	1
10949	1,2-Dichloropropane	78-87-5	27	1	1
10949	1,3-Dichloropropane	142-28-9	26	1	1
10949	2,2-Dichloropropane	594-20-7	30	1	1
10949	1,1-Dichloropropene	563-58-6	27	1	1
10949	cis-1,3-Dichloropropene	10061-01-5	24	1	1
10949	trans-1,3-Dichloropropene	10061-02-6	24	1	1
10949	Ethylbenzene	100-41-4	22	1	1
10949	Freon 113	76-13-1	28	3	1
10949	Hexachlorobutadiene	87-68-3	17	3	1
10949	2-Hexanone	591-78-6	120	4	1
10949	Isopropylbenzene	98-82-8	22	1	1
10949	p-Isopropyltoluene	99-87-6	19	1	1
10949	Methyl Acetate	79-20-9	30	3	1
10949	Methyl Tertiary Butyl Ether	1634-04-4	28	0.7	1
10949	4-Methyl-2-pentanone	108-10-1	140	4	1
10949	Methylcyclohexane	108-87-2	24	1	1
10949	Methylene Chloride	75-09-2	26	3	1
10949	Naphthalene	91-20-3	10	1	1

Sample Description: S18-SD01 Matrix Spike Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526785
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 09:45 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S1- SDG#: DHR13-01MS

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	21		1	1
10949	Styrene	100-42-5	19		1	1
10949	1,1,1,2-Tetrachloroethane	630-20-6	23		1	1
10949	1,1,2,2-Tetrachloroethane	79-34-5	22		1	1
10949	Tetrachloroethene	127-18-4	24		1	1
10949	Toluene	108-88-3	24		1	1
10949	1,2,3-Trichlorobenzene	87-61-6	10		1	1
10949	1,2,4-Trichlorobenzene	120-82-1	11		1	1
10949	1,1,1-Trichloroethane	71-55-6	29		1	1
10949	1,1,2-Trichloroethane	79-00-5	25		1	1
10949	Trichloroethene	79-01-6	25		1	1
10949	Trichlorofluoromethane	75-69-4	43		3	1
10949	1,2,3-Trichloropropane	96-18-4	24		1	1
10949	1,2,4-Trimethylbenzene	95-63-6	18		1	1
10949	1,3,5-Trimethylbenzene	108-67-8	19		1	1
10949	Vinyl Chloride	75-01-4	28		1	1
10949	m+p-Xylene	179601-23-1	43		1	1
10949	o-Xylene	95-47-6	21		1	1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	2,300		48	10
10727	Acenaphthylene	208-96-8	2,300		48	10
10727	Anthracene	120-12-7	2,500		48	10
10727	Benzo(a)anthracene	56-55-3	2,800		48	10
10727	Benzo(a)pyrene	50-32-8	2,900		48	10
10727	Benzo(b)fluoranthene	205-99-2	3,200		48	10
10727	Benzo(g,h,i)perylene	191-24-2	2,700		48	10
10727	Benzo(k)fluoranthene	207-08-9	2,800		48	10
10727	Benzyl alcohol	100-51-6	2,400	U	2,400	10
10727	1,1'-Biphenyl	92-52-4	3,900		240	10
10727	4-Bromophenyl-phenylether	101-55-3	2,200		240	10
10727	Butylbenzylphthalate	85-68-7	2,100	J	950	10
10727	Di-n-butylphthalate	84-74-2	2,400	J	950	10
10727	Carbazole	86-74-8	2,200		240	10
10727	4-Chloro-3-methylphenol	59-50-7	2,300		240	10
10727	4-Chloroaniline	106-47-8	720		240	10
10727	bis(2-Chloroethoxy)methane	111-91-1	2,200		240	10
10727	bis(2-Chloroethyl)ether	111-44-4	2,500		240	10
10727	bis(2-Chloroisopropyl)ether	39638-32-9	2,000		240	10
10727	2-Chloronaphthalene	91-58-7	2,300		100	10
10727	2-Chlorophenol	95-57-8	2,300		240	10
10727	4-Chlorophenyl-phenylether	7005-72-3	2,100		240	10
10727	Chrysene	218-01-9	2,700		48	10
10727	Dibenz(a,h)anthracene	53-70-3	2,400		48	10
10727	Dibenzofuran	132-64-9	2,300		240	10
10727	3,3'-Dichlorobenzidine	91-94-1	1,400	U	1,400	10
10727	2,4-Dichlorophenol	120-83-2	2,400		240	10
10727	Diethylphthalate	84-66-2	2,100	J	950	10
10727	2,4-Dimethylphenol	105-67-9	2,200		240	10
10727	Dimethylphthalate	131-11-3	2,200	J	950	10
10727	4,6-Dinitro-2-methylphenol	534-52-1	2,400	J	2,400	10

Sample Description: S18-SD01 Matrix Spike Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526785
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 09:45 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S1- SDG#: DHR13-01MS

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	4,300	U	4,300	10
10727	2,4-Dinitrotoluene	121-14-2	2,000	J	950	10
10727	2,6-Dinitrotoluene	606-20-2	2,000		240	10
10727	1,4-Dioxane	123-91-1	1,600	J	1,400	10
10727	bis(2-Ethylhexyl)phthalate	117-81-7	2,300	J	950	10
10727	Fluoranthene	206-44-0	4,700		48	10
10727	Fluorene	86-73-7	3,000		48	10
10727	Hexachlorobenzene	118-74-1	2,200		48	10
10727	Hexachlorocyclopentadiene	77-47-4	2,400	U	2,400	10
10727	Hexachloroethane	67-72-1	690	J	480	10
10727	Indeno(1,2,3-cd)pyrene	193-39-5	2,600		48	10
10727	Isophorone	78-59-1	2,100		240	10
10727	2-Methylnaphthalene	91-57-6	2,300		48	10
10727	2-Methylphenol	95-48-7	2,200		240	10
10727	4-Methylphenol	106-44-5	2,000		240	10
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	3,400		240	10
10727	3-Nitroaniline	99-09-2	1,500	J	950	10
10727	4-Nitroaniline	100-01-6	2,300	J	950	10
10727	Nitrobenzene	98-95-3	2,300		240	10
10727	2-Nitrophenol	88-75-5	720		240	10
10727	4-Nitrophenol	100-02-7	2,400	U	2,400	10
10727	N-Nitroso-di-n-propylamine	621-64-7	2,000		240	10
10727	N-Nitrosodiphenylamine	86-30-6	2,000		240	10
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	2,200	J	950	10
10727	Pentachlorophenol	87-86-5	910	J	480	10
10727	Phenanthrene	85-01-8	3,500		48	10
10727	Phenol	108-95-2	2,400		240	10
10727	Pyrene	129-00-0	3,800		48	10
10727	2,4,5-Trichlorophenol	95-95-4	2,100		240	10
10727	2,4,6-Trichlorophenol	88-06-2	2,000		240	10
Reporting limits were raised due to interference from the sample matrix.						
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	378		0.0247	1
06949	Cadmium	7440-43-9	7.24		0.0274	1
06951	Chromium	7440-47-3	72.8		0.192	1
06955	Lead	7439-92-1	41.6		0.302	1
06936	Selenium	7782-49-2	20.6		0.933	1
06966	Silver	7440-22-4	6.69		0.114	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	10.5		0.110	2
	SW-846 7471A		**mg/kg**		**mg/kg**	

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Analysis Report

Sample Description: S18-SD01 Matrix Spike Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526785
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 09:45 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S1- SDG#: DHR13-01MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.244	0.0093	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00118	Moisture	n.a.	29.9	0.50	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	B120241AA	01/24/2012 14:24	Chelsea B Eastep	1
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	1	201201926615	01/19/2012 21:48	Scott W Freisher	n.a.
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	2	201201926615	01/19/2012 21:48	Scott W Freisher	n.a.
06646	GC/MS HL Bulk Sample Prep	SW-846 5035A Modified	1	201201926615	01/19/2012 21:20	Scott W Freisher	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	12020SLA026	01/23/2012 15:17	Matthew S Woods	10
10809	BNA Soil Microwave	SW-846 3546	1	12020SLA026	01/20/2012 14:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	120245708001	01/24/2012 23:50	John W Yanzuk II	1
06949	Cadmium	SW-846 6010B	1	120245708001	01/24/2012 23:50	John W Yanzuk II	1
06951	Chromium	SW-846 6010B	1	120245708001	01/24/2012 23:50	John W Yanzuk II	1
06955	Lead	SW-846 6010B	1	120245708001	01/24/2012 23:50	John W Yanzuk II	1
06936	Selenium	SW-846 6010B	1	120245708001	01/24/2012 23:50	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	120245708001	01/24/2012 23:50	John W Yanzuk II	1
06125	Arsenic	SW-846 6020	1	120245708001A	01/26/2012 11:07	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	120255711001	01/25/2012 19:01	Nelli S Markaryan	1
05708	SW SW846 ICP/ICP MS Digest	SW-846 3050B	1	120245708001	01/24/2012 12:28	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	120245711001	01/24/2012 14:40	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	2	120255711001	01/25/2012 12:50	James L Mertz	1
00118	Moisture	SM20 2540 G	1	12025820002B	01/25/2012 18:32	Scott W Freisher	1

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Analysis Report

Sample Description: S18-SD01 Matrix Spike Dup Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526786
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 09:45 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S1- SDG#: DHR13-01MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**	**ug/kg**	
10949	Acetone	67-64-1	290	10	1.01
10949	Benzene	71-43-2	30	0.7	1.01
10949	Bromobenzene	108-86-1	33	1	1.01
10949	Bromochloromethane	74-97-5	30	1	1.01
10949	Bromodichloromethane	75-27-4	29	1	1.01
10949	Bromoform	75-25-2	23	1	1.01
10949	Bromomethane	74-83-9	27	3	1.01
10949	2-Butanone	78-93-3	220	6	1.01
10949	n-Butylbenzene	104-51-8	32	1	1.01
10949	sec-Butylbenzene	135-98-8	36	1	1.01
10949	tert-Butylbenzene	98-06-6	34	1	1.01
10949	Carbon Disulfide	75-15-0	28	1	1.01
10949	Carbon Tetrachloride	56-23-5	34	1	1.01
10949	Chlorobenzene	108-90-7	29	1	1.01
10949	Chloroethane	75-00-3	26	3	1.01
10949	Chloroform	67-66-3	32	1	1.01
10949	Chloromethane	74-87-3	30	3	1.01
10949	2-Chlorotoluene	95-49-8	32	1	1.01
10949	4-Chlorotoluene	106-43-4	31	1	1.01
10949	Cyclohexane	110-82-7	32	1	1.01
10949	1,2-Dibromo-3-chloropropane	96-12-8	28	3	1.01
10949	Dibromochloromethane	124-48-1	27	1	1.01
10949	1,2-Dibromoethane	106-93-4	27	1	1.01
10949	Dibromomethane	74-95-3	29	1	1.01
10949	1,2-Dichlorobenzene	95-50-1	27	1	1.01
10949	1,3-Dichlorobenzene	541-73-1	29	1	1.01
10949	1,4-Dichlorobenzene	106-46-7	28	1	1.01
10949	Dichlorodifluoromethane	75-71-8	33	3	1.01
10949	1,1-Dichloroethane	75-34-3	32	1	1.01
10949	1,2-Dichloroethane	107-06-2	35	1	1.01
10949	1,1-Dichloroethene	75-35-4	30	1	1.01
10949	cis-1,2-Dichloroethene	156-59-2	30	1	1.01
10949	trans-1,2-Dichloroethene	156-60-5	29	1	1.01
10949	1,2-Dichloropropane	78-87-5	30	1	1.01
10949	1,3-Dichloropropane	142-28-9	30	1	1.01
10949	2,2-Dichloropropane	594-20-7	33	1	1.01
10949	1,1-Dichloropropene	563-58-6	32	1	1.01
10949	cis-1,3-Dichloropropene	10061-01-5	27	1	1.01
10949	trans-1,3-Dichloropropene	10061-02-6	28	1	1.01
10949	Ethylbenzene	100-41-4	30	1	1.01
10949	Freon 113	76-13-1	33	3	1.01
10949	Hexachlorobutadiene	87-68-3	34	3	1.01
10949	2-Hexanone	591-78-6	130	4	1.01
10949	Isopropylbenzene	98-82-8	32	1	1.01
10949	p-Isopropyltoluene	99-87-6	34	1	1.01
10949	Methyl Acetate	79-20-9	30	3	1.01
10949	Methyl Tertiary Butyl Ether	1634-04-4	30	0.7	1.01
10949	4-Methyl-2-pentanone	108-10-1	140	4	1.01
10949	Methylcyclohexane	108-87-2	27	1	1.01
10949	Methylene Chloride	75-09-2	32	3	1.01
10949	Naphthalene	91-20-3	16	1	1.01

Sample Description: S18-SD01 Matrix Spike Dup Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526786
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 09:45 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S1- SDG#: DHR13-01MSD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	36		1	1.01
10949	Styrene	100-42-5	26		1	1.01
10949	1,1,1,2-Tetrachloroethane	630-20-6	30		1	1.01
10949	1,1,2,2-Tetrachloroethane	79-34-5	32		1	1.01
10949	Tetrachloroethene	127-18-4	31		1	1.01
10949	Toluene	108-88-3	30		1	1.01
10949	1,2,3-Trichlorobenzene	87-61-6	17		1	1.01
10949	1,2,4-Trichlorobenzene	120-82-1	18		1	1.01
10949	1,1,1-Trichloroethane	71-55-6	32		1	1.01
10949	1,1,2-Trichloroethane	79-00-5	29		1	1.01
10949	Trichloroethene	79-01-6	29		1	1.01
10949	Trichlorofluoromethane	75-69-4	35		3	1.01
10949	1,2,3-Trichloropropane	96-18-4	35		1	1.01
10949	1,2,4-Trimethylbenzene	95-63-6	32		1	1.01
10949	1,3,5-Trimethylbenzene	108-67-8	33		1	1.01
10949	Vinyl Chloride	75-01-4	30		1	1.01
10949	m+p-Xylene	179601-23-1	58		1	1.01
10949	o-Xylene	95-47-6	27		1	1.01
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	2,400		48	10
10727	Acenaphthylene	208-96-8	2,000		48	10
10727	Anthracene	120-12-7	2,200		48	10
10727	Benzo(a)anthracene	56-55-3	2,500		48	10
10727	Benzo(a)pyrene	50-32-8	2,500		48	10
10727	Benzo(b)fluoranthene	205-99-2	2,600		48	10
10727	Benzo(g,h,i)perylene	191-24-2	2,200		48	10
10727	Benzo(k)fluoranthene	207-08-9	2,300		48	10
10727	Benzyl alcohol	100-51-6	2,400	U	2,400	10
10727	1,1'-Biphenyl	92-52-4	3,000		240	10
10727	4-Bromophenyl-phenylether	101-55-3	2,100		240	10
10727	Butylbenzylphthalate	85-68-7	1,800	J	950	10
10727	Di-n-butylphthalate	84-74-2	2,000	J	950	10
10727	Carbazole	86-74-8	2,000		240	10
10727	4-Chloro-3-methylphenol	59-50-7	1,900		240	10
10727	4-Chloroaniline	106-47-8	1,300		240	10
10727	bis(2-Chloroethoxy)methane	111-91-1	1,800		240	10
10727	bis(2-Chloroethyl)ether	111-44-4	2,000		240	10
10727	bis(2-Chloroisopropyl)ether	39638-32-9	1,700		240	10
10727	2-Chloronaphthalene	91-58-7	1,800		100	10
10727	2-Chlorophenol	95-57-8	1,800		240	10
10727	4-Chlorophenyl-phenylether	7005-72-3	2,000		240	10
10727	Chrysene	218-01-9	2,500		48	10
10727	Dibenz(a,h)anthracene	53-70-3	1,900		48	10
10727	Dibenzofuran	132-64-9	2,000		240	10
10727	3,3'-Dichlorobenzidine	91-94-1	1,400	U	1,400	10
10727	2,4-Dichlorophenol	120-83-2	1,900		240	10
10727	Diethylphthalate	84-66-2	1,900	J	950	10
10727	2,4-Dimethylphenol	105-67-9	1,800		240	10
10727	Dimethylphthalate	131-11-3	1,900	J	950	10
10727	4,6-Dinitro-2-methylphenol	534-52-1	2,700	J	2,400	10

Sample Description: S18-SD01 Matrix Spike Dup Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526786
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 09:45 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S1- SDG#: DHR13-01MSD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	4,300	U	4,300	10
10727	2,4-Dinitrotoluene	121-14-2	1,800	J	950	10
10727	2,6-Dinitrotoluene	606-20-2	1,900		240	10
10727	1,4-Dioxane	123-91-1	1,400	U	1,400	10
10727	bis(2-Ethylhexyl)phthalate	117-81-7	2,100	J	950	10
10727	Fluoranthene	206-44-0	4,000		48	10
10727	Fluorene	86-73-7	2,400		48	10
10727	Hexachlorobenzene	118-74-1	2,000		48	10
10727	Hexachlorocyclopentadiene	77-47-4	2,400	U	2,400	10
10727	Hexachloroethane	67-72-1	1,300	J	480	10
10727	Indeno(1,2,3-cd)pyrene	193-39-5	2,200		48	10
10727	Isophorone	78-59-1	1,800		240	10
10727	2-Methylnaphthalene	91-57-6	2,000		48	10
10727	2-Methylphenol	95-48-7	1,900		240	10
10727	4-Methylphenol	106-44-5	1,800		240	10
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	2,500		240	10
10727	3-Nitroaniline	99-09-2	1,700	J	950	10
10727	4-Nitroaniline	100-01-6	2,800		950	10
10727	Nitrobenzene	98-95-3	1,900		240	10
10727	2-Nitrophenol	88-75-5	1,500		240	10
10727	4-Nitrophenol	100-02-7	2,400	U	2,400	10
10727	N-Nitroso-di-n-propylamine	621-64-7	1,600		240	10
10727	N-Nitrosodiphenylamine	86-30-6	1,900		240	10
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	1,900	J	950	10
10727	Pentachlorophenol	87-86-5	1,300	J	480	10
10727	Phenanthrene	85-01-8	3,000		48	10
10727	Phenol	108-95-2	2,000		240	10
10727	Pyrene	129-00-0	3,300		48	10
10727	2,4,5-Trichlorophenol	95-95-4	1,800		240	10
10727	2,4,6-Trichlorophenol	88-06-2	1,900		240	10
	Reporting limits were raised due to interference from the sample matrix.					
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	392		0.0252	1
06949	Cadmium	7440-43-9	10.0		0.0280	1
06951	Chromium	7440-47-3	82.2		0.196	1
06955	Lead	7439-92-1	54.4		0.308	1
06936	Selenium	7782-49-2	23.3		0.951	1
06966	Silver	7440-22-4	6.87		0.116	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	10.4		0.112	2
	SW-846 7471A		**mg/kg**		**mg/kg**	

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Analysis Report

Sample Description: S18-SD01 Matrix Spike Dup Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526786
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 09:45 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S1- SDG#: DHR13-01MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals		**SW-846 7471A**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.255	0.0099	1
Wet Chemistry		**SM20 2540 G**	**%**	**%**	
00118	Moisture	n.a.	29.9	0.50	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	B120241AA	01/24/2012 14:47	Chelsea B Eastep	1.01
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	1	201201926615	01/19/2012 21:48	Scott W Freisher	n.a.
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	2	201201926615	01/19/2012 21:48	Scott W Freisher	n.a.
06646	GC/MS HL Bulk Sample Prep	SW-846 5035A Modified	1	201201926615	01/19/2012 21:22	Scott W Freisher	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	12020SLA026	01/23/2012 15:41	Matthew S Woods	10
10809	BNA Soil Microwave	SW-846 3546	1	12020SLA026	01/20/2012 14:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	120245708001	01/24/2012 23:54	John W Yanzuk II	1
06949	Cadmium	SW-846 6010B	1	120245708001	01/24/2012 23:54	John W Yanzuk II	1
06951	Chromium	SW-846 6010B	1	120245708001	01/24/2012 23:54	John W Yanzuk II	1
06955	Lead	SW-846 6010B	1	120245708001	01/24/2012 23:54	John W Yanzuk II	1
06936	Selenium	SW-846 6010B	1	120245708001	01/24/2012 23:54	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	120245708001	01/24/2012 23:54	John W Yanzuk II	1
06125	Arsenic	SW-846 6020	1	120245708001A	01/26/2012 11:08	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	120255711001	01/25/2012 19:02	Nelli S Markaryan	1
05708	SW SW846 ICP/ICP MS Digest	SW-846 3050B	1	120245708001	01/24/2012 12:28	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	120245711001	01/24/2012 14:40	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	2	120255711001	01/25/2012 12:50	James L Mertz	1
00118	Moisture	SM20 2540 G	1	12025820002B	01/25/2012 18:32	Scott W Freisher	1

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Analysis Report

Sample Description: S18-SD01 Duplicate Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526787
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 09:45 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S1- SDG#: DHR13-01DUP

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
Metals		**SW-846 6010B**	**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	108		0.0254	1
06949	Cadmium	7440-43-9	0.740		0.0282	1
06951	Chromium	7440-47-3	53.6		0.198	1
06955	Lead	7439-92-1	23.2		0.311	1
06936	Selenium	7782-49-2	2.07	J	0.960	1
06966	Silver	7440-22-4	0.468	J	0.117	1
		SW-846 6020	**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	6.93		0.113	2
		SW-846 7471A	**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0172	J	0.0098	1
Wet Chemistry		**SM20 2540 G**	**%**		**%**	
00118	Moisture	n.a.	29.9		0.50	1
00121	Moisture Duplicate	n.a.	34.2		0.50	1

The duplicate moisture value is provided to assess the precision of the moisture test. For comparability purposes, the initial moisture determination is the value used to perform dry weight calculations.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06946	Barium	SW-846 6010B	1	120245708001	01/24/2012 23:47	John W Yanzuk II	1
06949	Cadmium	SW-846 6010B	1	120245708001	01/24/2012 23:47	John W Yanzuk II	1
06951	Chromium	SW-846 6010B	1	120245708001	01/24/2012 23:47	John W Yanzuk II	1
06955	Lead	SW-846 6010B	1	120245708001	01/24/2012 23:47	John W Yanzuk II	1
06936	Selenium	SW-846 6010B	1	120245708001	01/24/2012 23:47	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	120245708001	01/24/2012 23:47	John W Yanzuk II	1
06125	Arsenic	SW-846 6020	1	120245708001A	01/26/2012 11:05	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	120255711001	01/25/2012 19:00	Nelli S Markaryan	1
05708	SW SW846 ICP/ICP MS Digest	SW-846 3050B	1	120245708001	01/24/2012 12:28	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	120245711001	01/24/2012 14:40	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	2	120255711001	01/25/2012 12:50	James L Mertz	1
00118	Moisture	SM20 2540 G	1	12025820002B	01/25/2012 18:32	Scott W Freisher	1
00121	Moisture Duplicate	SM20 2540 G	1	12025820002B	01/25/2012 18:32	Scott W Freisher	1

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Analysis Report

Sample Description: S18-SD02 Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526788
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 10:00 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S2- SDG#: DHR13-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	24	J	12	1.07
10949	Benzene	71-43-2	0.8	U	0.8	1.07
10949	Bromobenzene	108-86-1	2	U	2	1.07
10949	Bromochloromethane	74-97-5	2	U	2	1.07
10949	Bromodichloromethane	75-27-4	2	U	2	1.07
10949	Bromoform	75-25-2	2	U	2	1.07
10949	Bromomethane	74-83-9	3	U	3	1.07
10949	2-Butanone	78-93-3	7	U	7	1.07
10949	n-Butylbenzene	104-51-8	2	U	2	1.07
10949	sec-Butylbenzene	135-98-8	2	U	2	1.07
10949	tert-Butylbenzene	98-06-6	2	U	2	1.07
10949	Carbon Disulfide	75-15-0	2	U	2	1.07
10949	Carbon Tetrachloride	56-23-5	2	U	2	1.07
10949	Chlorobenzene	108-90-7	2	U	2	1.07
10949	Chloroethane	75-00-3	3	U	3	1.07
10949	Chloroform	67-66-3	2	U	2	1.07
10949	Chloromethane	74-87-3	3	U	3	1.07
10949	2-Chlorotoluene	95-49-8	2	U	2	1.07
10949	4-Chlorotoluene	106-43-4	2	U	2	1.07
10949	Cyclohexane	110-82-7	2	U	2	1.07
10949	1,2-Dibromo-3-chloropropane	96-12-8	3	U	3	1.07
10949	Dibromochloromethane	124-48-1	2	U	2	1.07
10949	1,2-Dibromoethane	106-93-4	2	U	2	1.07
10949	Dibromomethane	74-95-3	2	U	2	1.07
10949	1,2-Dichlorobenzene	95-50-1	2	U	2	1.07
10949	1,3-Dichlorobenzene	541-73-1	2	U	2	1.07
10949	1,4-Dichlorobenzene	106-46-7	2	U	2	1.07
10949	Dichlorodifluoromethane	75-71-8	3	U	3	1.07
10949	1,1-Dichloroethane	75-34-3	2	U	2	1.07
10949	1,2-Dichloroethane	107-06-2	2	U	2	1.07
10949	1,1-Dichloroethene	75-35-4	2	U	2	1.07
10949	cis-1,2-Dichloroethene	156-59-2	2	U	2	1.07
10949	trans-1,2-Dichloroethene	156-60-5	2	U	2	1.07
10949	1,2-Dichloropropane	78-87-5	2	U	2	1.07
10949	1,3-Dichloropropane	142-28-9	2	U	2	1.07
10949	2,2-Dichloropropane	594-20-7	2	U	2	1.07
10949	1,1-Dichloropropene	563-58-6	2	U	2	1.07
10949	cis-1,3-Dichloropropene	10061-01-5	2	U	2	1.07
10949	trans-1,3-Dichloropropene	10061-02-6	2	U	2	1.07
10949	Ethylbenzene	100-41-4	2	U	2	1.07
10949	Freon 113	76-13-1	3	U	3	1.07
10949	Hexachlorobutadiene	87-68-3	3	U	3	1.07
10949	2-Hexanone	591-78-6	5	U	5	1.07
10949	Isopropylbenzene	98-82-8	2	U	2	1.07
10949	p-Isopropyltoluene	99-87-6	2	U	2	1.07
10949	Methyl Acetate	79-20-9	3	U	3	1.07
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.8	U	0.8	1.07
10949	4-Methyl-2-pentanone	108-10-1	5	U	5	1.07
10949	Methylcyclohexane	108-87-2	2	U	2	1.07
10949	Methylene Chloride	75-09-2	3	U	3	1.07
10949	Naphthalene	91-20-3	2	U	2	1.07

Sample Description: S18-SD02 Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526788
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 10:00 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S2- SDG#: DHR13-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	2	U	2	1.07
10949	Styrene	100-42-5	2	U	2	1.07
10949	1,1,1,2-Tetrachloroethane	630-20-6	2	U	2	1.07
10949	1,1,2,2-Tetrachloroethane	79-34-5	2	U	2	1.07
10949	Tetrachloroethene	127-18-4	2	U	2	1.07
10949	Toluene	108-88-3	2	U	2	1.07
10949	1,2,3-Trichlorobenzene	87-61-6	2	U	2	1.07
10949	1,2,4-Trichlorobenzene	120-82-1	2	U	2	1.07
10949	1,1,1-Trichloroethane	71-55-6	2	U	2	1.07
10949	1,1,2-Trichloroethane	79-00-5	2	U	2	1.07
10949	Trichloroethene	79-01-6	2	U	2	1.07
10949	Trichlorofluoromethane	75-69-4	3	U	3	1.07
10949	1,2,3-Trichloropropane	96-18-4	2	U	2	1.07
10949	1,2,4-Trimethylbenzene	95-63-6	2	U	2	1.07
10949	1,3,5-Trimethylbenzene	108-67-8	2	U	2	1.07
10949	Vinyl Acetate	108-05-4	3	U	3	1.07
10949	Vinyl Chloride	75-01-4	2	U	2	1.07
10949	m+p-Xylene	179601-23-1	2	U	2	1.07
10949	o-Xylene	95-47-6	2	U	2	1.07
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	52	U	52	10
10727	Acenaphthylene	208-96-8	52	U	52	10
10727	Anthracene	120-12-7	52	U	52	10
10727	Benzo(a)anthracene	56-55-3	88	J	52	10
10727	Benzo(a)pyrene	50-32-8	97	J	52	10
10727	Benzo(b)fluoranthene	205-99-2	160	J	52	10
10727	Benzo(g,h,i)perylene	191-24-2	98	J	52	10
10727	Benzo(k)fluoranthene	207-08-9	63	J	52	10
10727	Benzyl alcohol	100-51-6	2,600	U	2,600	10
10727	1,1'-Biphenyl	92-52-4	2,300		260	10
10727	4-Bromophenyl-phenylether	101-55-3	260	U	260	10
10727	Butylbenzylphthalate	85-68-7	1,000	U	1,000	10
10727	Di-n-butylphthalate	84-74-2	1,000	U	1,000	10
10727	Carbazole	86-74-8	260	U	260	10
10727	4-Chloro-3-methylphenol	59-50-7	260	U	260	10
10727	4-Chloroaniline	106-47-8	260	U	260	10
10727	bis(2-Chloroethoxy)methane	111-91-1	260	U	260	10
10727	bis(2-Chloroethyl)ether	111-44-4	260	U	260	10
10727	bis(2-Chloroisopropyl)ether	39638-32-9	260	U	260	10
10727	2-Chloronaphthalene	91-58-7	110	U	110	10
10727	2-Chlorophenol	95-57-8	260	U	260	10
10727	4-Chlorophenyl-phenylether	7005-72-3	260	U	260	10
10727	Chrysene	218-01-9	130	J	52	10
10727	Dibenz(a,h)anthracene	53-70-3	52	U	52	10
10727	Dibenzofuran	132-64-9	260	U	260	10
10727	3,3'-Dichlorobenzidine	91-94-1	1,600	U	1,600	10
10727	2,4-Dichlorophenol	120-83-2	260	U	260	10
10727	Diethylphthalate	84-66-2	1,000	U	1,000	10
10727	2,4-Dimethylphenol	105-67-9	260	U	260	10
10727	Dimethylphthalate	131-11-3	1,000	U	1,000	10

Sample Description: S18-SD02 Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526788
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 10:00 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S2- SDG#: DHR13-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	4,6-Dinitro-2-methylphenol	534-52-1	2,600	U	2,600	10
10727	2,4-Dinitrophenol	51-28-5	4,700	U	4,700	10
10727	2,4-Dinitrotoluene	121-14-2	1,000	U	1,000	10
10727	2,6-Dinitrotoluene	606-20-2	260	U	260	10
10727	1,4-Dioxane	123-91-1	1,600	U	1,600	10
10727	bis(2-Ethylhexyl)phthalate	117-81-7	1,000	U	1,000	10
10727	Fluoranthene	206-44-0	220	J	52	10
10727	Fluorene	86-73-7	52	U	52	10
10727	Hexachlorobenzene	118-74-1	52	U	52	10
10727	Hexachlorocyclopentadiene	77-47-4	2,600	U	2,600	10
10727	Hexachloroethane	67-72-1	520	U	520	10
10727	Indeno(1,2,3-cd)pyrene	193-39-5	85	J	52	10
10727	Isophorone	78-59-1	260	U	260	10
10727	2-Methylnaphthalene	91-57-6	52	U	52	10
10727	2-Methylphenol	95-48-7	260	U	260	10
10727	4-Methylphenol	106-44-5	260	U	260	10
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	260	U	260	10
10727	3-Nitroaniline	99-09-2	1,000	U	1,000	10
10727	4-Nitroaniline	100-01-6	1,000	U	1,000	10
10727	Nitrobenzene	98-95-3	260	U	260	10
10727	2-Nitrophenol	88-75-5	260	U	260	10
10727	4-Nitrophenol	100-02-7	2,600	U	2,600	10
10727	N-Nitroso-di-n-propylamine	621-64-7	260	U	260	10
10727	N-Nitrosodiphenylamine	86-30-6	260	U	260	10
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	1,000	U	1,000	10
10727	Pentachlorophenol	87-86-5	520	U	520	10
10727	Phenanthrene	85-01-8	130	J	52	10
10727	Phenol	108-95-2	260	U	260	10
10727	Pyrene	129-00-0	200	J	52	10
10727	2,4,5-Trichlorophenol	95-95-4	260	U	260	10
10727	2,4,6-Trichlorophenol	88-06-2	260	U	260	10
	Reporting limits were raised due to interference from the sample matrix.					
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	58.1		0.0283	1
06949	Cadmium	7440-43-9	0.188	J	0.0314	1
06951	Chromium	7440-47-3	29.0		0.220	1
06955	Lead	7439-92-1	14.9		0.345	1
06936	Selenium	7782-49-2	2.90	J	1.07	1
06966	Silver	7440-22-4	0.130	U	0.130	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	9.45		0.126	2

Sample Description: S18-SD02 Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526788
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 10:00 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S2- SDG#: DHR13-02

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0139 J	0.0103	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	36.3	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	B120241AA	01/24/2012 17:22	Chelsea B Eastep	1.07
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	1	201201926615	01/19/2012 21:48	Scott W Freisher	n.a.
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	2	201201926615	01/19/2012 21:48	Scott W Freisher	n.a.
06646	GC/MS HL Bulk Sample Prep	SW-846 5035A Modified	1	201201926615	01/19/2012 21:24	Scott W Freisher	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	12020SLA026	01/23/2012 16:05	Matthew S Woods	10
10809	BNA Soil Microwave	SW-846 3546	1	12020SLA026	01/20/2012 14:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	120245708001	01/25/2012 00:05	John W Yanzuk II	1
06949	Cadmium	SW-846 6010B	1	120245708001	01/25/2012 00:05	John W Yanzuk II	1
06951	Chromium	SW-846 6010B	1	120245708001	01/25/2012 00:05	John W Yanzuk II	1
06955	Lead	SW-846 6010B	1	120245708001	01/25/2012 00:05	John W Yanzuk II	1
06936	Selenium	SW-846 6010B	1	120245708001	01/25/2012 00:05	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	120245708001	01/25/2012 00:05	John W Yanzuk II	1
06125	Arsenic	SW-846 6020	1	120245708001A	01/26/2012 11:14	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	120255711001	01/25/2012 19:03	Nelli S Markaryan	1
05708	SW SW846 ICP/ICP MS Digest	SW-846 3050B	1	120245708001	01/24/2012 12:28	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	120245711001	01/24/2012 14:40	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	2	120255711001	01/25/2012 12:50	James L Mertz	1
00111	Moisture	SM20 2540 G	1	12025820002B	01/25/2012 18:32	Scott W Freisher	1

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Analysis Report

Sample Description: HGR-011812-FD02 Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526789
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 10:00 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

FD2-- SDG#: DHR13-03FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	27	J	11	0.98
10949	Benzene	71-43-2	0.8	U	0.8	0.98
10949	Bromobenzene	108-86-1	2	U	2	0.98
10949	Bromochloromethane	74-97-5	2	U	2	0.98
10949	Bromodichloromethane	75-27-4	2	U	2	0.98
10949	Bromoform	75-25-2	2	U	2	0.98
10949	Bromomethane	74-83-9	3	U	3	0.98
10949	2-Butanone	78-93-3	7	J	6	0.98
10949	n-Butylbenzene	104-51-8	2	U	2	0.98
10949	sec-Butylbenzene	135-98-8	2	U	2	0.98
10949	tert-Butylbenzene	98-06-6	2	U	2	0.98
10949	Carbon Disulfide	75-15-0	2	U	2	0.98
10949	Carbon Tetrachloride	56-23-5	2	U	2	0.98
10949	Chlorobenzene	108-90-7	2	U	2	0.98
10949	Chloroethane	75-00-3	3	U	3	0.98
10949	Chloroform	67-66-3	2	U	2	0.98
10949	Chloromethane	74-87-3	3	U	3	0.98
10949	2-Chlorotoluene	95-49-8	2	U	2	0.98
10949	4-Chlorotoluene	106-43-4	2	U	2	0.98
10949	Cyclohexane	110-82-7	2	U	2	0.98
10949	1,2-Dibromo-3-chloropropane	96-12-8	3	U	3	0.98
10949	Dibromochloromethane	124-48-1	2	U	2	0.98
10949	1,2-Dibromoethane	106-93-4	2	U	2	0.98
10949	Dibromomethane	74-95-3	2	U	2	0.98
10949	1,2-Dichlorobenzene	95-50-1	2	U	2	0.98
10949	1,3-Dichlorobenzene	541-73-1	2	U	2	0.98
10949	1,4-Dichlorobenzene	106-46-7	2	U	2	0.98
10949	Dichlorodifluoromethane	75-71-8	3	U	3	0.98
10949	1,1-Dichloroethane	75-34-3	2	U	2	0.98
10949	1,2-Dichloroethane	107-06-2	2	U	2	0.98
10949	1,1-Dichloroethene	75-35-4	2	U	2	0.98
10949	cis-1,2-Dichloroethene	156-59-2	2	U	2	0.98
10949	trans-1,2-Dichloroethene	156-60-5	2	U	2	0.98
10949	1,2-Dichloropropane	78-87-5	2	U	2	0.98
10949	1,3-Dichloropropane	142-28-9	2	U	2	0.98
10949	2,2-Dichloropropane	594-20-7	2	U	2	0.98
10949	1,1-Dichloropropene	563-58-6	2	U	2	0.98
10949	cis-1,3-Dichloropropene	10061-01-5	2	U	2	0.98
10949	trans-1,3-Dichloropropene	10061-02-6	2	U	2	0.98
10949	Ethylbenzene	100-41-4	2	U	2	0.98
10949	Freon 113	76-13-1	3	U	3	0.98
10949	Hexachlorobutadiene	87-68-3	3	U	3	0.98
10949	2-Hexanone	591-78-6	5	U	5	0.98
10949	Isopropylbenzene	98-82-8	2	U	2	0.98
10949	p-Isopropyltoluene	99-87-6	2	U	2	0.98
10949	Methyl Acetate	79-20-9	3	U	3	0.98
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.8	U	0.8	0.98
10949	4-Methyl-2-pentanone	108-10-1	5	U	5	0.98
10949	Methylcyclohexane	108-87-2	2	U	2	0.98
10949	Methylene Chloride	75-09-2	3	U	3	0.98
10949	Naphthalene	91-20-3	2	U	2	0.98

Sample Description: HGR-011812-FD02 Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526789
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 10:00 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

FD2-- SDG#: DHR13-03FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	2	U	2	0.98
10949	Styrene	100-42-5	2	U	2	0.98
10949	1,1,1,2-Tetrachloroethane	630-20-6	2	U	2	0.98
10949	1,1,2,2-Tetrachloroethane	79-34-5	2	U	2	0.98
10949	Tetrachloroethene	127-18-4	2	U	2	0.98
10949	Toluene	108-88-3	2	U	2	0.98
10949	1,2,3-Trichlorobenzene	87-61-6	2	U	2	0.98
10949	1,2,4-Trichlorobenzene	120-82-1	2	U	2	0.98
10949	1,1,1-Trichloroethane	71-55-6	2	U	2	0.98
10949	1,1,2-Trichloroethane	79-00-5	2	U	2	0.98
10949	Trichloroethene	79-01-6	2	U	2	0.98
10949	Trichlorofluoromethane	75-69-4	3	U	3	0.98
10949	1,2,3-Trichloropropane	96-18-4	2	U	2	0.98
10949	1,2,4-Trimethylbenzene	95-63-6	2	U	2	0.98
10949	1,3,5-Trimethylbenzene	108-67-8	2	U	2	0.98
10949	Vinyl Acetate	108-05-4	3	U	3	0.98
10949	Vinyl Chloride	75-01-4	2	U	2	0.98
10949	m+p-Xylene	179601-23-1	2	U	2	0.98
10949	o-Xylene	95-47-6	2	U	2	0.98
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	52	U	52	10
10727	Acenaphthylene	208-96-8	52	U	52	10
10727	Anthracene	120-12-7	52	U	52	10
10727	Benzo(a)anthracene	56-55-3	130	J	52	10
10727	Benzo(a)pyrene	50-32-8	110	J	52	10
10727	Benzo(b)fluoranthene	205-99-2	210	J	52	10
10727	Benzo(g,h,i)perylene	191-24-2	92	J	52	10
10727	Benzo(k)fluoranthene	207-08-9	68	J	52	10
10727	Benzyl alcohol	100-51-6	2,600	U	2,600	10
10727	1,1'-Biphenyl	92-52-4	2,700		260	10
10727	4-Bromophenyl-phenylether	101-55-3	260	U	260	10
10727	Butylbenzylphthalate	85-68-7	1,000	U	1,000	10
10727	Di-n-butylphthalate	84-74-2	1,000	U	1,000	10
10727	Carbazole	86-74-8	260	U	260	10
10727	4-Chloro-3-methylphenol	59-50-7	260	U	260	10
10727	4-Chloroaniline	106-47-8	260	U	260	10
10727	bis(2-Chloroethoxy)methane	111-91-1	260	U	260	10
10727	bis(2-Chloroethyl)ether	111-44-4	260	U	260	10
10727	bis(2-Chloroisopropyl)ether	39638-32-9	260	U	260	10
10727	2-Chloronaphthalene	91-58-7	110	U	110	10
10727	2-Chlorophenol	95-57-8	260	U	260	10
10727	4-Chlorophenyl-phenylether	7005-72-3	260	U	260	10
10727	Chrysene	218-01-9	160	J	52	10
10727	Dibenz(a,h)anthracene	53-70-3	52	U	52	10
10727	Dibenzofuran	132-64-9	260	U	260	10
10727	3,3'-Dichlorobenzidine	91-94-1	1,600	U	1,600	10
10727	2,4-Dichlorophenol	120-83-2	260	U	260	10
10727	Diethylphthalate	84-66-2	1,000	U	1,000	10
10727	2,4-Dimethylphenol	105-67-9	260	U	260	10
10727	Dimethylphthalate	131-11-3	1,000	U	1,000	10

Sample Description: HGR-011812-FD02 Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526789
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 10:00 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

FD2-- SDG#: DHR13-03FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	4,6-Dinitro-2-methylphenol	534-52-1	2,600	U	2,600	10
10727	2,4-Dinitrophenol	51-28-5	4,700	U	4,700	10
10727	2,4-Dinitrotoluene	121-14-2	1,000	U	1,000	10
10727	2,6-Dinitrotoluene	606-20-2	260	U	260	10
10727	1,4-Dioxane	123-91-1	1,600	U	1,600	10
10727	bis(2-Ethylhexyl)phthalate	117-81-7	1,000	U	1,000	10
10727	Fluoranthene	206-44-0	270		52	10
10727	Fluorene	86-73-7	52	U	52	10
10727	Hexachlorobenzene	118-74-1	52	U	52	10
10727	Hexachlorocyclopentadiene	77-47-4	2,600	U	2,600	10
10727	Hexachloroethane	67-72-1	520	U	520	10
10727	Indeno(1,2,3-cd)pyrene	193-39-5	98	J	52	10
10727	Isophorone	78-59-1	260	U	260	10
10727	2-Methylnaphthalene	91-57-6	52	U	52	10
10727	2-Methylphenol	95-48-7	260	U	260	10
10727	4-Methylphenol	106-44-5	260	U	260	10
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	260	U	260	10
10727	3-Nitroaniline	99-09-2	1,000	U	1,000	10
10727	4-Nitroaniline	100-01-6	1,000	U	1,000	10
10727	Nitrobenzene	98-95-3	260	U	260	10
10727	2-Nitrophenol	88-75-5	260	U	260	10
10727	4-Nitrophenol	100-02-7	2,600	U	2,600	10
10727	N-Nitroso-di-n-propylamine	621-64-7	260	U	260	10
10727	N-Nitrosodiphenylamine	86-30-6	260	U	260	10
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	1,000	U	1,000	10
10727	Pentachlorophenol	87-86-5	520	U	520	10
10727	Phenanthrene	85-01-8	170	J	52	10
10727	Phenol	108-95-2	260	U	260	10
10727	Pyrene	129-00-0	230	J	52	10
10727	2,4,5-Trichlorophenol	95-95-4	260	U	260	10
10727	2,4,6-Trichlorophenol	88-06-2	260	U	260	10
	Reporting limits were raised due to interference from the sample matrix.					
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	64.1		0.0277	1
06949	Cadmium	7440-43-9	0.269	J	0.0307	1
06951	Chromium	7440-47-3	27.8		0.215	1
06955	Lead	7439-92-1	16.4		0.338	1
06936	Selenium	7782-49-2	2.69	J	1.04	1
06966	Silver	7440-22-4	0.128	U	0.128	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	12.9		0.123	2

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Analysis Report

Sample Description: HGR-011812-FD02 Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526789
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 10:00 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

FD2-- SDG#: DHR13-03FD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0134 J	0.0105	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	36.2	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	B120241AA	01/24/2012 21:28	Chelsea B Eastep	0.98
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	1	201201926615	01/19/2012 21:48	Scott W Freisher	n.a.
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	2	201201926615	01/19/2012 21:48	Scott W Freisher	n.a.
06646	GC/MS HL Bulk Sample Prep	SW-846 5035A Modified	1	201201926615	01/19/2012 21:26	Scott W Freisher	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	12020SLA026	01/23/2012 16:30	Matthew S Woods	10
10809	BNA Soil Microwave	SW-846 3546	1	12020SLA026	01/20/2012 14:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	120245708001	01/25/2012 00:16	John W Yanzuk II	1
06949	Cadmium	SW-846 6010B	1	120245708001	01/25/2012 00:16	John W Yanzuk II	1
06951	Chromium	SW-846 6010B	1	120245708001	01/25/2012 00:16	John W Yanzuk II	1
06955	Lead	SW-846 6010B	1	120245708001	01/25/2012 00:16	John W Yanzuk II	1
06936	Selenium	SW-846 6010B	1	120245708001	01/25/2012 00:16	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	120245708001	01/25/2012 00:16	John W Yanzuk II	1
06125	Arsenic	SW-846 6020	1	120245708001A	01/26/2012 11:19	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	120255711001	01/25/2012 19:05	Nelli S Markaryan	1
05708	SW SW846 ICP/ICP MS Digest	SW-846 3050B	1	120245708001	01/24/2012 12:28	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	120245711001	01/24/2012 14:40	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	2	120255711001	01/25/2012 12:50	James L Mertz	1
00111	Moisture	SM20 2540 G	1	12025820002B	01/25/2012 18:32	Scott W Freisher	1

Sample Description: S17-SD01 Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526790
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 10:15 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

17S-1 SDG#: DHR13-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	12	U	12	1.04
10949	Benzene	71-43-2	0.8	U	0.8	1.04
10949	Bromobenzene	108-86-1	2	U	2	1.04
10949	Bromochloromethane	74-97-5	2	U	2	1.04
10949	Bromodichloromethane	75-27-4	2	U	2	1.04
10949	Bromoform	75-25-2	2	U	2	1.04
10949	Bromomethane	74-83-9	3	U	3	1.04
10949	2-Butanone	78-93-3	7	U	7	1.04
10949	n-Butylbenzene	104-51-8	2	U	2	1.04
10949	sec-Butylbenzene	135-98-8	2	U	2	1.04
10949	tert-Butylbenzene	98-06-6	2	U	2	1.04
10949	Carbon Disulfide	75-15-0	2	U	2	1.04
10949	Carbon Tetrachloride	56-23-5	2	U	2	1.04
10949	Chlorobenzene	108-90-7	2	U	2	1.04
10949	Chloroethane	75-00-3	3	U	3	1.04
10949	Chloroform	67-66-3	2	U	2	1.04
10949	Chloromethane	74-87-3	3	U	3	1.04
10949	2-Chlorotoluene	95-49-8	2	U	2	1.04
10949	4-Chlorotoluene	106-43-4	2	U	2	1.04
10949	Cyclohexane	110-82-7	2	U	2	1.04
10949	1,2-Dibromo-3-chloropropane	96-12-8	3	U	3	1.04
10949	Dibromochloromethane	124-48-1	2	U	2	1.04
10949	1,2-Dibromoethane	106-93-4	2	U	2	1.04
10949	Dibromomethane	74-95-3	2	U	2	1.04
10949	1,2-Dichlorobenzene	95-50-1	2	U	2	1.04
10949	1,3-Dichlorobenzene	541-73-1	2	U	2	1.04
10949	1,4-Dichlorobenzene	106-46-7	2	U	2	1.04
10949	Dichlorodifluoromethane	75-71-8	3	U	3	1.04
10949	1,1-Dichloroethane	75-34-3	2	U	2	1.04
10949	1,2-Dichloroethane	107-06-2	2	U	2	1.04
10949	1,1-Dichloroethene	75-35-4	2	U	2	1.04
10949	cis-1,2-Dichloroethene	156-59-2	2	U	2	1.04
10949	trans-1,2-Dichloroethene	156-60-5	2	U	2	1.04
10949	1,2-Dichloropropane	78-87-5	2	U	2	1.04
10949	1,3-Dichloropropane	142-28-9	2	U	2	1.04
10949	2,2-Dichloropropane	594-20-7	2	U	2	1.04
10949	1,1-Dichloropropene	563-58-6	2	U	2	1.04
10949	cis-1,3-Dichloropropene	10061-01-5	2	U	2	1.04
10949	trans-1,3-Dichloropropene	10061-02-6	2	U	2	1.04
10949	Ethylbenzene	100-41-4	2	U	2	1.04
10949	Freon 113	76-13-1	3	U	3	1.04
10949	Hexachlorobutadiene	87-68-3	3	U	3	1.04
10949	2-Hexanone	591-78-6	5	U	5	1.04
10949	Isopropylbenzene	98-82-8	2	U	2	1.04
10949	p-Isopropyltoluene	99-87-6	2	U	2	1.04
10949	Methyl Acetate	79-20-9	3	U	3	1.04
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.8	U	0.8	1.04
10949	4-Methyl-2-pentanone	108-10-1	5	U	5	1.04
10949	Methylcyclohexane	108-87-2	2	U	2	1.04
10949	Methylene Chloride	75-09-2	3	U	3	1.04
10949	Naphthalene	91-20-3	2	U	2	1.04

Sample Description: S17-SD01 Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526790
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 10:15 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

17S-1 SDG#: DHR13-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	2	U	2	1.04
10949	Styrene	100-42-5	2	U	2	1.04
10949	1,1,1,2-Tetrachloroethane	630-20-6	2	U	2	1.04
10949	1,1,2,2-Tetrachloroethane	79-34-5	2	U	2	1.04
10949	Tetrachloroethene	127-18-4	2	U	2	1.04
10949	Toluene	108-88-3	2	U	2	1.04
10949	1,2,3-Trichlorobenzene	87-61-6	2	U	2	1.04
10949	1,2,4-Trichlorobenzene	120-82-1	2	U	2	1.04
10949	1,1,1-Trichloroethane	71-55-6	2	U	2	1.04
10949	1,1,2-Trichloroethane	79-00-5	2	U	2	1.04
10949	Trichloroethene	79-01-6	2	U	2	1.04
10949	Trichlorofluoromethane	75-69-4	3	U	3	1.04
10949	1,2,3-Trichloropropane	96-18-4	2	U	2	1.04
10949	1,2,4-Trimethylbenzene	95-63-6	2	U	2	1.04
10949	1,3,5-Trimethylbenzene	108-67-8	2	U	2	1.04
10949	Vinyl Acetate	108-05-4	3	U	3	1.04
10949	Vinyl Chloride	75-01-4	2	U	2	1.04
10949	m+p-Xylene	179601-23-1	2	U	2	1.04
10949	o-Xylene	95-47-6	2	U	2	1.04
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	5	U	5	1
10727	Acenaphthylene	208-96-8	14	J	5	1
10727	Anthracene	120-12-7	22	J	5	1
10727	Benzo(a)anthracene	56-55-3	43		5	1
10727	Benzo(a)pyrene	50-32-8	47		5	1
10727	Benzo(b)fluoranthene	205-99-2	65		5	1
10727	Benzo(g,h,i)perylene	191-24-2	38		5	1
10727	Benzo(k)fluoranthene	207-08-9	25	J	5	1
10727	Benzyl alcohol	100-51-6	270	U	270	1
10727	1,1'-Biphenyl	92-52-4	51	J	27	1
10727	4-Bromophenyl-phenylether	101-55-3	27	U	27	1
10727	Butylbenzylphthalate	85-68-7	110	U	110	1
10727	Di-n-butylphthalate	84-74-2	110	U	110	1
10727	Carbazole	86-74-8	27	U	27	1
10727	4-Chloro-3-methylphenol	59-50-7	27	U	27	1
10727	4-Chloroaniline	106-47-8	27	U	27	1
10727	bis(2-Chloroethoxy)methane	111-91-1	27	U	27	1
10727	bis(2-Chloroethyl)ether	111-44-4	27	U	27	1
10727	bis(2-Chloroisopropyl)ether	39638-32-9	27	U	27	1
10727	2-Chloronaphthalene	91-58-7	11	U	11	1
10727	2-Chlorophenol	95-57-8	27	U	27	1
10727	4-Chlorophenyl-phenylether	7005-72-3	27	U	27	1
10727	Chrysene	218-01-9	55		5	1
10727	Dibenz(a,h)anthracene	53-70-3	13	J	5	1
10727	Dibenzofuran	132-64-9	27	U	27	1
10727	3,3'-Dichlorobenzidine	91-94-1	160	U	160	1
10727	2,4-Dichlorophenol	120-83-2	27	U	27	1
10727	Diethylphthalate	84-66-2	110	U	110	1
10727	2,4-Dimethylphenol	105-67-9	27	U	27	1
10727	Dimethylphthalate	131-11-3	110	U	110	1

Sample Description: S17-SD01 Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526790
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 10:15 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

17S-1 SDG#: DHR13-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	4,6-Dinitro-2-methylphenol	534-52-1	270	U	270	1
10727	2,4-Dinitrophenol	51-28-5	480	U	480	1
10727	2,4-Dinitrotoluene	121-14-2	110	U	110	1
10727	2,6-Dinitrotoluene	606-20-2	27	U	27	1
10727	1,4-Dioxane	123-91-1	160	U	160	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	110	U	110	1
10727	Fluoranthene	206-44-0	96		5	1
10727	Fluorene	86-73-7	10	J	5	1
10727	Hexachlorobenzene	118-74-1	5	U	5	1
10727	Hexachlorocyclopentadiene	77-47-4	270	U	270	1
10727	Hexachloroethane	67-72-1	53	U	53	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	32		5	1
10727	Isophorone	78-59-1	27	U	27	1
10727	2-Methylnaphthalene	91-57-6	13	J	5	1
10727	2-Methylphenol	95-48-7	27	U	27	1
10727	4-Methylphenol	106-44-5	27	U	27	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	27	U	27	1
10727	3-Nitroaniline	99-09-2	110	U	110	1
10727	4-Nitroaniline	100-01-6	110	U	110	1
10727	Nitrobenzene	98-95-3	27	U	27	1
10727	2-Nitrophenol	88-75-5	27	U	27	1
10727	4-Nitrophenol	100-02-7	270	U	270	1
10727	N-Nitroso-di-n-propylamine	621-64-7	27	U	27	1
10727	N-Nitrosodiphenylamine	86-30-6	27	U	27	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	110	U	110	1
10727	Pentachlorophenol	87-86-5	1,300		53	1
10727	Phenanthrene	85-01-8	51		5	1
10727	Phenol	108-95-2	27	U	27	1
10727	Pyrene	129-00-0	77		5	1
10727	2,4,5-Trichlorophenol	95-95-4	27	U	27	1
10727	2,4,6-Trichlorophenol	88-06-2	27	U	27	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	107		0.0282	1
06949	Cadmium	7440-43-9	0.255	J	0.0313	1
06951	Chromium	7440-47-3	27.7		0.219	1
06955	Lead	7439-92-1	21.0		0.345	1
06936	Selenium	7782-49-2	2.90	J	1.06	1
06966	Silver	7440-22-4	0.130	U	0.130	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	11.1		0.125	2
	SW-846 7471A		**mg/kg**		**mg/kg**	

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Analysis Report

Sample Description: S17-SD01 Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526790
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 10:15 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

17S-1 SDG#: DHR13-04

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0228 J	0.0110	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	37.4	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	B120241AA	01/24/2012 15:09	Chelsea B Eastep	1.04
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	1	201201926615	01/19/2012 21:48	Scott W Freisher	n.a.
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	2	201201926615	01/19/2012 21:48	Scott W Freisher	n.a.
06646	GC/MS HL Bulk Sample Prep	SW-846 5035A Modified	1	201201926615	01/19/2012 21:29	Scott W Freisher	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	12020SLA026	01/23/2012 00:55	Jennifer R Riggs	1
10809	BNA Soil Microwave	SW-846 3546	1	12020SLA026	01/20/2012 14:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	120245708001	01/25/2012 00:19	John W Yanzuk II	1
06949	Cadmium	SW-846 6010B	1	120245708001	01/25/2012 00:19	John W Yanzuk II	1
06951	Chromium	SW-846 6010B	1	120245708001	01/25/2012 00:19	John W Yanzuk II	1
06955	Lead	SW-846 6010B	1	120245708001	01/25/2012 00:19	John W Yanzuk II	1
06936	Selenium	SW-846 6010B	1	120245708001	01/25/2012 00:19	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	120245708001	01/25/2012 00:19	John W Yanzuk II	1
06125	Arsenic	SW-846 6020	1	120245708001A	01/26/2012 11:21	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	120255711001	01/25/2012 19:06	Nelli S Markaryan	1
05708	SW SW846 ICP/ICP MS Digest	SW-846 3050B	1	120245708001	01/24/2012 12:28	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	120245711001	01/24/2012 14:40	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	2	120255711001	01/25/2012 12:50	James L Mertz	1
00111	Moisture	SM20 2540 G	1	12025820002B	01/25/2012 18:32	Scott W Freisher	1

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Analysis Report

Sample Description: S18-SD03 Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526791
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 13:30 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S3- SDG#: DHR13-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	8	U	8	0.93
10949	Benzene	71-43-2	0.5	U	0.5	0.93
10949	Bromobenzene	108-86-1	1	U	1	0.93
10949	Bromochloromethane	74-97-5	1	U	1	0.93
10949	Bromodichloromethane	75-27-4	1	U	1	0.93
10949	Bromoform	75-25-2	1	U	1	0.93
10949	Bromomethane	74-83-9	2	U	2	0.93
10949	2-Butanone	78-93-3	4	U	4	0.93
10949	n-Butylbenzene	104-51-8	1	U	1	0.93
10949	sec-Butylbenzene	135-98-8	1	U	1	0.93
10949	tert-Butylbenzene	98-06-6	1	U	1	0.93
10949	Carbon Disulfide	75-15-0	1	U	1	0.93
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.93
10949	Chlorobenzene	108-90-7	1	U	1	0.93
10949	Chloroethane	75-00-3	2	U	2	0.93
10949	Chloroform	67-66-3	1	U	1	0.93
10949	Chloromethane	74-87-3	2	U	2	0.93
10949	2-Chlorotoluene	95-49-8	1	U	1	0.93
10949	4-Chlorotoluene	106-43-4	1	U	1	0.93
10949	Cyclohexane	110-82-7	1	U	1	0.93
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.93
10949	Dibromochloromethane	124-48-1	1	U	1	0.93
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.93
10949	Dibromomethane	74-95-3	1	U	1	0.93
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.93
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.93
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.93
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.93
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.93
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.93
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.93
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.93
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.93
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.93
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.93
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.93
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.93
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.93
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.93
10949	Ethylbenzene	100-41-4	1	U	1	0.93
10949	Freon 113	76-13-1	2	U	2	0.93
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.93
10949	2-Hexanone	591-78-6	3	U	3	0.93
10949	Isopropylbenzene	98-82-8	1	U	1	0.93
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.93
10949	Methyl Acetate	79-20-9	2	U	2	0.93
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.93
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.93
10949	Methylcyclohexane	108-87-2	1	U	1	0.93
10949	Methylene Chloride	75-09-2	2	U	2	0.93
10949	Naphthalene	91-20-3	1	U	1	0.93

Sample Description: S18-SD03 Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526791
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 13:30 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S3- SDG#: DHR13-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.93
10949	Styrene	100-42-5	1	U	1	0.93
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.93
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.93
10949	Tetrachloroethene	127-18-4	1	U	1	0.93
10949	Toluene	108-88-3	1	U	1	0.93
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.93
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.93
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.93
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.93
10949	Trichloroethene	79-01-6	1	U	1	0.93
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.93
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.93
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.93
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.93
10949	Vinyl Acetate	108-05-4	2	U	2	0.93
10949	Vinyl Chloride	75-01-4	1	U	1	0.93
10949	m+p-Xylene	179601-23-1	1	U	1	0.93
10949	o-Xylene	95-47-6	1	U	1	0.93
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	7	J	4	1
10727	Anthracene	120-12-7	8	J	4	1
10727	Benzo(a)anthracene	56-55-3	38		4	1
10727	Benzo(a)pyrene	50-32-8	46		4	1
10727	Benzo(b)fluoranthene	205-99-2	77		4	1
10727	Benzo(g,h,i)perylene	191-24-2	47		4	1
10727	Benzo(k)fluoranthene	207-08-9	29		4	1
10727	Benzyl alcohol	100-51-6	190	U	190	1
10727	1,1'-Biphenyl	92-52-4	87		19	1
10727	4-Bromophenyl-phenylether	101-55-3	19	U	19	1
10727	Butylbenzylphthalate	85-68-7	78	U	78	1
10727	Di-n-butylphthalate	84-74-2	78	U	78	1
10727	Carbazole	86-74-8	19	U	19	1
10727	4-Chloro-3-methylphenol	59-50-7	19	U	19	1
10727	4-Chloroaniline	106-47-8	19	U	19	1
10727	bis(2-Chloroethoxy)methane	111-91-1	19	U	19	1
10727	bis(2-Chloroethyl)ether	111-44-4	19	U	19	1
10727	bis(2-Chloroisopropyl)ether	39638-32-9	19	U	19	1
10727	2-Chloronaphthalene	91-58-7	8	U	8	1
10727	2-Chlorophenol	95-57-8	19	U	19	1
10727	4-Chlorophenyl-phenylether	7005-72-3	19	U	19	1
10727	Chrysene	218-01-9	51		4	1
10727	Dibenz(a,h)anthracene	53-70-3	14	J	4	1
10727	Dibenzofuran	132-64-9	19	U	19	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	19	U	19	1
10727	Diethylphthalate	84-66-2	78	U	78	1
10727	2,4-Dimethylphenol	105-67-9	19	U	19	1
10727	Dimethylphthalate	131-11-3	78	U	78	1

Sample Description: S18-SD03 Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526791
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 13:30 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S3- SDG#: DHR13-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	4,6-Dinitro-2-methylphenol	534-52-1	190	U	190	1
10727	2,4-Dinitrophenol	51-28-5	350	U	350	1
10727	2,4-Dinitrotoluene	121-14-2	78	U	78	1
10727	2,6-Dinitrotoluene	606-20-2	19	U	19	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	78	U	78	1
10727	Fluoranthene	206-44-0	98		4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	190	U	190	1
10727	Hexachloroethane	67-72-1	39	U	39	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	39		4	1
10727	Isophorone	78-59-1	19	U	19	1
10727	2-Methylnaphthalene	91-57-6	8	J	4	1
10727	2-Methylphenol	95-48-7	19	U	19	1
10727	4-Methylphenol	106-44-5	19	U	19	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	19	U	19	1
10727	3-Nitroaniline	99-09-2	78	U	78	1
10727	4-Nitroaniline	100-01-6	78	U	78	1
10727	Nitrobenzene	98-95-3	19	U	19	1
10727	2-Nitrophenol	88-75-5	19	U	19	1
10727	4-Nitrophenol	100-02-7	190	U	190	1
10727	N-Nitroso-di-n-propylamine	621-64-7	19	U	19	1
10727	N-Nitrosodiphenylamine	86-30-6	19	U	19	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	78	U	78	1
10727	Pentachlorophenol	87-86-5	39	U	39	1
10727	Phenanthrene	85-01-8	37		4	1
10727	Phenol	108-95-2	19	U	19	1
10727	Pyrene	129-00-0	70		4	1
10727	2,4,5-Trichlorophenol	95-95-4	19	U	19	1
10727	2,4,6-Trichlorophenol	88-06-2	19	U	19	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	42.0		0.0210	1
06949	Cadmium	7440-43-9	0.149	J	0.0233	1
06951	Chromium	7440-47-3	15.1		0.163	1
06955	Lead	7439-92-1	8.86		0.256	1
06936	Selenium	7782-49-2	1.98	J	0.793	1
06966	Silver	7440-22-4	0.0967	U	0.0967	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	12.2		0.0932	2
	SW-846 7471A		**mg/kg**		**mg/kg**	

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Analysis Report

Sample Description: S18-SD03 Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526791
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 13:30 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S3- SDG#: DHR13-05

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0079 U	0.0079	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	14.2	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	B120241AA	01/24/2012 21:51	Chelsea B Eastep	0.93
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	1	201201926615	01/19/2012 21:48	Scott W Freisher	n.a.
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	2	201201926615	01/19/2012 21:48	Scott W Freisher	n.a.
06646	GC/MS HL Bulk Sample Prep	SW-846 5035A Modified	1	201201926615	01/19/2012 21:30	Scott W Freisher	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	12020SLA026	01/23/2012 01:20	Jennifer R Riggs	1
10809	BNA Soil Microwave	SW-846 3546	1	12020SLA026	01/20/2012 14:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	120245708001	01/25/2012 00:23	John W Yanzuk II	1
06949	Cadmium	SW-846 6010B	1	120245708001	01/25/2012 00:23	John W Yanzuk II	1
06951	Chromium	SW-846 6010B	1	120245708001	01/25/2012 00:23	John W Yanzuk II	1
06955	Lead	SW-846 6010B	1	120245708001	01/25/2012 00:23	John W Yanzuk II	1
06936	Selenium	SW-846 6010B	1	120245708001	01/25/2012 00:23	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	120245708001	01/25/2012 00:23	John W Yanzuk II	1
06125	Arsenic	SW-846 6020	1	120245708001A	01/26/2012 11:23	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	120255711001	01/25/2012 19:09	Nelli S Markaryan	1
05708	SW SW846 ICP/ICP MS Digest	SW-846 3050B	1	120245708001	01/24/2012 12:28	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	120245711001	01/24/2012 14:40	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	2	120255711001	01/25/2012 12:50	James L Mertz	1
00111	Moisture	SM20 2540 G	1	12025820002B	01/25/2012 18:32	Scott W Freisher	1

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Analysis Report

Sample Description: S18-SD04 Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526792
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 14:00 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S4- SDG#: DHR13-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	9	U	9	1
10949	Benzene	71-43-2	0.6	U	0.6	1
10949	Bromobenzene	108-86-1	1	U	1	1
10949	Bromochloromethane	74-97-5	1	U	1	1
10949	Bromodichloromethane	75-27-4	1	U	1	1
10949	Bromoform	75-25-2	1	U	1	1
10949	Bromomethane	74-83-9	2	U	2	1
10949	2-Butanone	78-93-3	5	U	5	1
10949	n-Butylbenzene	104-51-8	1	U	1	1
10949	sec-Butylbenzene	135-98-8	1	U	1	1
10949	tert-Butylbenzene	98-06-6	1	U	1	1
10949	Carbon Disulfide	75-15-0	1	U	1	1
10949	Carbon Tetrachloride	56-23-5	1	U	1	1
10949	Chlorobenzene	108-90-7	1	U	1	1
10949	Chloroethane	75-00-3	2	U	2	1
10949	Chloroform	67-66-3	1	U	1	1
10949	Chloromethane	74-87-3	2	U	2	1
10949	2-Chlorotoluene	95-49-8	1	U	1	1
10949	4-Chlorotoluene	106-43-4	1	U	1	1
10949	Cyclohexane	110-82-7	1	U	1	1
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	1
10949	Dibromochloromethane	124-48-1	1	U	1	1
10949	1,2-Dibromoethane	106-93-4	1	U	1	1
10949	Dibromomethane	74-95-3	1	U	1	1
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	1
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	1
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	1
10949	Dichlorodifluoromethane	75-71-8	2	U	2	1
10949	1,1-Dichloroethane	75-34-3	1	U	1	1
10949	1,2-Dichloroethane	107-06-2	1	U	1	1
10949	1,1-Dichloroethene	75-35-4	1	U	1	1
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	1
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	1
10949	1,2-Dichloropropane	78-87-5	1	U	1	1
10949	1,3-Dichloropropane	142-28-9	1	U	1	1
10949	2,2-Dichloropropane	594-20-7	1	U	1	1
10949	1,1-Dichloropropene	563-58-6	1	U	1	1
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	1
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	1
10949	Ethylbenzene	100-41-4	1	U	1	1
10949	Freon 113	76-13-1	2	U	2	1
10949	Hexachlorobutadiene	87-68-3	2	U	2	1
10949	2-Hexanone	591-78-6	4	U	4	1
10949	Isopropylbenzene	98-82-8	1	U	1	1
10949	p-Isopropyltoluene	99-87-6	1	U	1	1
10949	Methyl Acetate	79-20-9	2	U	2	1
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.6	U	0.6	1
10949	4-Methyl-2-pentanone	108-10-1	4	U	4	1
10949	Methylcyclohexane	108-87-2	1	U	1	1
10949	Methylene Chloride	75-09-2	4	J	2	1
10949	Naphthalene	91-20-3	1	U	1	1

Sample Description: S18-SD04 Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526792
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 14:00 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S4- SDG#: DHR13-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	1
10949	Styrene	100-42-5	1	U	1	1
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	1
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	1
10949	Tetrachloroethene	127-18-4	1	U	1	1
10949	Toluene	108-88-3	1	U	1	1
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	1
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	1
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	1
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	1
10949	Trichloroethene	79-01-6	1	U	1	1
10949	Trichlorofluoromethane	75-69-4	2	U	2	1
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	1
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	1
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	1
10949	Vinyl Acetate	108-05-4	2	U	2	1
10949	Vinyl Chloride	75-01-4	1	U	1	1
10949	m+p-Xylene	179601-23-1	1	U	1	1
10949	o-Xylene	95-47-6	1	U	1	1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	21		4	1
10727	Anthracene	120-12-7	45		4	1
10727	Benzo(a)anthracene	56-55-3	160		4	1
10727	Benzo(a)pyrene	50-32-8	150		4	1
10727	Benzo(b)fluoranthene	205-99-2	180		4	1
10727	Benzo(g,h,i)perylene	191-24-2	98		4	1
10727	Benzo(k)fluoranthene	207-08-9	79		4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	22	J	20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	82	U	82	1
10727	Di-n-butylphthalate	84-74-2	82	U	82	1
10727	Carbazole	86-74-8	20	U	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	bis(2-Chloroisopropyl)ether	39638-32-9	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	140		4	1
10727	Dibenz(a,h)anthracene	53-70-3	27		4	1
10727	Dibenzofuran	132-64-9	20	U	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1
10727	Diethylphthalate	84-66-2	82	U	82	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	82	U	82	1

Sample Description: S18-SD04 Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526792
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 14:00 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S4- SDG#: DHR13-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1
10727	2,4-Dinitrophenol	51-28-5	370	U	370	1
10727	2,4-Dinitrotoluene	121-14-2	82	U	82	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	82	U	82	1
10727	Fluoranthene	206-44-0	260		4	1
10727	Fluorene	86-73-7	7	J	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	41	U	41	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	90		4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	6	J	4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	82	U	82	1
10727	4-Nitroaniline	100-01-6	82	U	82	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	82	U	82	1
10727	Pentachlorophenol	87-86-5	41	U	41	1
10727	Phenanthrene	85-01-8	30		4	1
10727	Phenol	108-95-2	20	U	20	1
10727	Pyrene	129-00-0	220		4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	71.4		0.0214	1
06949	Cadmium	7440-43-9	0.0821	J	0.0238	1
06951	Chromium	7440-47-3	20.8		0.167	1
06955	Lead	7439-92-1	16.3		0.262	1
06936	Selenium	7782-49-2	4.35		0.809	1
06966	Silver	7440-22-4	0.0988	U	0.0988	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	16.4		0.0952	2
	SW-846 7471A		**mg/kg**		**mg/kg**	

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Analysis Report

Sample Description: S18-SD04 Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526792
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 14:00 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S4- SDG#: DHR13-06

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0082 U	0.0082	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	18.4	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	B120241AA	01/24/2012 15:31	Chelsea B Eastep	1
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	1	201201926615	01/19/2012 21:49	Scott W Freisher	n.a.
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	2	201201926615	01/19/2012 21:49	Scott W Freisher	n.a.
06646	GC/MS HL Bulk Sample Prep	SW-846 5035A Modified	1	201201926615	01/19/2012 21:36	Scott W Freisher	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	12020SLA026	01/23/2012 01:43	Jennifer R Riggs	1
10809	BNA Soil Microwave	SW-846 3546	1	12020SLA026	01/20/2012 14:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	120245708001	01/25/2012 00:27	John W Yanzuk II	1
06949	Cadmium	SW-846 6010B	1	120245708001	01/25/2012 00:27	John W Yanzuk II	1
06951	Chromium	SW-846 6010B	1	120245708001	01/25/2012 00:27	John W Yanzuk II	1
06955	Lead	SW-846 6010B	1	120245708001	01/25/2012 00:27	John W Yanzuk II	1
06936	Selenium	SW-846 6010B	1	120245708001	01/25/2012 00:27	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	120245708001	01/25/2012 00:27	John W Yanzuk II	1
06125	Arsenic	SW-846 6020	1	120245708001A	01/26/2012 11:25	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	120255711001	01/25/2012 19:11	Nelli S Markaryan	1
05708	SW SW846 ICP/ICP MS Digest	SW-846 3050B	1	120245708001	01/24/2012 12:28	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	120245711001	01/24/2012 14:40	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	2	120255711001	01/25/2012 12:50	James L Mertz	1
00111	Moisture	SM20 2540 G	1	12025820002B	01/25/2012 18:32	Scott W Freisher	1

Sample Description: S18-SD05 Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526793
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 14:15 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S5- SDG#: DHR13-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	12	U	12	1.08
10949	Benzene	71-43-2	0.8	U	0.8	1.08
10949	Bromobenzene	108-86-1	2	U	2	1.08
10949	Bromochloromethane	74-97-5	2	U	2	1.08
10949	Bromodichloromethane	75-27-4	2	U	2	1.08
10949	Bromoform	75-25-2	2	U	2	1.08
10949	Bromomethane	74-83-9	3	U	3	1.08
10949	2-Butanone	78-93-3	7	U	7	1.08
10949	n-Butylbenzene	104-51-8	2	U	2	1.08
10949	sec-Butylbenzene	135-98-8	2	U	2	1.08
10949	tert-Butylbenzene	98-06-6	2	U	2	1.08
10949	Carbon Disulfide	75-15-0	2	U	2	1.08
10949	Carbon Tetrachloride	56-23-5	2	U	2	1.08
10949	Chlorobenzene	108-90-7	2	U	2	1.08
10949	Chloroethane	75-00-3	3	U	3	1.08
10949	Chloroform	67-66-3	2	U	2	1.08
10949	Chloromethane	74-87-3	3	U	3	1.08
10949	2-Chlorotoluene	95-49-8	2	U	2	1.08
10949	4-Chlorotoluene	106-43-4	2	U	2	1.08
10949	Cyclohexane	110-82-7	2	U	2	1.08
10949	1,2-Dibromo-3-chloropropane	96-12-8	3	U	3	1.08
10949	Dibromochloromethane	124-48-1	2	U	2	1.08
10949	1,2-Dibromoethane	106-93-4	2	U	2	1.08
10949	Dibromomethane	74-95-3	2	U	2	1.08
10949	1,2-Dichlorobenzene	95-50-1	2	U	2	1.08
10949	1,3-Dichlorobenzene	541-73-1	2	U	2	1.08
10949	1,4-Dichlorobenzene	106-46-7	2	U	2	1.08
10949	Dichlorodifluoromethane	75-71-8	3	U	3	1.08
10949	1,1-Dichloroethane	75-34-3	2	U	2	1.08
10949	1,2-Dichloroethane	107-06-2	2	U	2	1.08
10949	1,1-Dichloroethene	75-35-4	2	U	2	1.08
10949	cis-1,2-Dichloroethene	156-59-2	2	U	2	1.08
10949	trans-1,2-Dichloroethene	156-60-5	2	U	2	1.08
10949	1,2-Dichloropropane	78-87-5	2	U	2	1.08
10949	1,3-Dichloropropane	142-28-9	2	U	2	1.08
10949	2,2-Dichloropropane	594-20-7	2	U	2	1.08
10949	1,1-Dichloropropene	563-58-6	2	U	2	1.08
10949	cis-1,3-Dichloropropene	10061-01-5	2	U	2	1.08
10949	trans-1,3-Dichloropropene	10061-02-6	2	U	2	1.08
10949	Ethylbenzene	100-41-4	2	U	2	1.08
10949	Freon 113	76-13-1	3	U	3	1.08
10949	Hexachlorobutadiene	87-68-3	3	U	3	1.08
10949	2-Hexanone	591-78-6	5	U	5	1.08
10949	Isopropylbenzene	98-82-8	2	U	2	1.08
10949	p-Isopropyltoluene	99-87-6	2	U	2	1.08
10949	Methyl Acetate	79-20-9	3	U	3	1.08
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.8	U	0.8	1.08
10949	4-Methyl-2-pentanone	108-10-1	5	U	5	1.08
10949	Methylcyclohexane	108-87-2	2	U	2	1.08
10949	Methylene Chloride	75-09-2	3	U	3	1.08
10949	Naphthalene	91-20-3	2	U	2	1.08

Sample Description: S18-SD05 Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526793
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 14:15 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S5- SDG#: DHR13-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	2	U	2	1.08
10949	Styrene	100-42-5	2	U	2	1.08
10949	1,1,1,2-Tetrachloroethane	630-20-6	2	U	2	1.08
10949	1,1,2,2-Tetrachloroethane	79-34-5	2	U	2	1.08
10949	Tetrachloroethene	127-18-4	2	U	2	1.08
10949	Toluene	108-88-3	2	U	2	1.08
10949	1,2,3-Trichlorobenzene	87-61-6	2	U	2	1.08
10949	1,2,4-Trichlorobenzene	120-82-1	2	U	2	1.08
10949	1,1,1-Trichloroethane	71-55-6	2	U	2	1.08
10949	1,1,2-Trichloroethane	79-00-5	2	U	2	1.08
10949	Trichloroethene	79-01-6	2	U	2	1.08
10949	Trichlorofluoromethane	75-69-4	3	U	3	1.08
10949	1,2,3-Trichloropropane	96-18-4	2	U	2	1.08
10949	1,2,4-Trimethylbenzene	95-63-6	2	U	2	1.08
10949	1,3,5-Trimethylbenzene	108-67-8	2	U	2	1.08
10949	Vinyl Acetate	108-05-4	3	U	3	1.08
10949	Vinyl Chloride	75-01-4	2	U	2	1.08
10949	m+p-Xylene	179601-23-1	2	U	2	1.08
10949	o-Xylene	95-47-6	2	U	2	1.08
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	5	U	5	1
10727	Acenaphthylene	208-96-8	7	J	5	1
10727	Anthracene	120-12-7	21	J	5	1
10727	Benzo(a)anthracene	56-55-3	28		5	1
10727	Benzo(a)pyrene	50-32-8	31		5	1
10727	Benzo(b)fluoranthene	205-99-2	43		5	1
10727	Benzo(g,h,i)perylene	191-24-2	28		5	1
10727	Benzo(k)fluoranthene	207-08-9	19	J	5	1
10727	Benzyl alcohol	100-51-6	250	U	250	1
10727	1,1'-Biphenyl	92-52-4	45	J	25	1
10727	4-Bromophenyl-phenylether	101-55-3	25	U	25	1
10727	Butylbenzylphthalate	85-68-7	100	U	100	1
10727	Di-n-butylphthalate	84-74-2	100	U	100	1
10727	Carbazole	86-74-8	25	U	25	1
10727	4-Chloro-3-methylphenol	59-50-7	25	U	25	1
10727	4-Chloroaniline	106-47-8	25	U	25	1
10727	bis(2-Chloroethoxy)methane	111-91-1	25	U	25	1
10727	bis(2-Chloroethyl)ether	111-44-4	25	U	25	1
10727	bis(2-Chloroisopropyl)ether	39638-32-9	25	U	25	1
10727	2-Chloronaphthalene	91-58-7	11	U	11	1
10727	2-Chlorophenol	95-57-8	25	U	25	1
10727	4-Chlorophenyl-phenylether	7005-72-3	25	U	25	1
10727	Chrysene	218-01-9	32		5	1
10727	Dibenz(a,h)anthracene	53-70-3	5	U	5	1
10727	Dibenzofuran	132-64-9	25	U	25	1
10727	3,3'-Dichlorobenzidine	91-94-1	150	U	150	1
10727	2,4-Dichlorophenol	120-83-2	25	U	25	1
10727	Diethylphthalate	84-66-2	100	U	100	1
10727	2,4-Dimethylphenol	105-67-9	25	U	25	1
10727	Dimethylphthalate	131-11-3	100	U	100	1

Sample Description: S18-SD05 Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526793
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 14:15 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S5- SDG#: DHR13-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	4,6-Dinitro-2-methylphenol	534-52-1	250	U	250	1
10727	2,4-Dinitrophenol	51-28-5	460	U	460	1
10727	2,4-Dinitrotoluene	121-14-2	100	U	100	1
10727	2,6-Dinitrotoluene	606-20-2	25	U	25	1
10727	1,4-Dioxane	123-91-1	150	U	150	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	100	U	100	1
10727	Fluoranthene	206-44-0	57		5	1
10727	Fluorene	86-73-7	5	U	5	1
10727	Hexachlorobenzene	118-74-1	5	U	5	1
10727	Hexachlorocyclopentadiene	77-47-4	250	U	250	1
10727	Hexachloroethane	67-72-1	51	U	51	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	28		5	1
10727	Isophorone	78-59-1	25	U	25	1
10727	2-Methylnaphthalene	91-57-6	8	J	5	1
10727	2-Methylphenol	95-48-7	25	U	25	1
10727	4-Methylphenol	106-44-5	25	U	25	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	25	U	25	1
10727	3-Nitroaniline	99-09-2	100	U	100	1
10727	4-Nitroaniline	100-01-6	100	U	100	1
10727	Nitrobenzene	98-95-3	25	U	25	1
10727	2-Nitrophenol	88-75-5	25	U	25	1
10727	4-Nitrophenol	100-02-7	250	U	250	1
10727	N-Nitroso-di-n-propylamine	621-64-7	25	U	25	1
10727	N-Nitrosodiphenylamine	86-30-6	25	U	25	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	100	U	100	1
10727	Pentachlorophenol	87-86-5	51	U	51	1
10727	Phenanthrene	85-01-8	22	J	5	1
10727	Phenol	108-95-2	25	U	25	1
10727	Pyrene	129-00-0	51		5	1
10727	2,4,5-Trichlorophenol	95-95-4	25	U	25	1
10727	2,4,6-Trichlorophenol	88-06-2	25	U	25	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	163		0.0273	1
06949	Cadmium	7440-43-9	0.178	J	0.0303	1
06951	Chromium	7440-47-3	26.6		0.212	1
06955	Lead	7439-92-1	21.6		0.334	1
06936	Selenium	7782-49-2	3.46		1.03	1
06966	Silver	7440-22-4	0.126	U	0.126	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	12.3		0.121	2
	SW-846 7471A		**mg/kg**		**mg/kg**	

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Analysis Report

Sample Description: S18-SD05 Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526793
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 14:15 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S5- SDG#: DHR13-07

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0218 J	0.010	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	34.1	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	B120241AA	01/24/2012 16:16	Chelsea B Eastep	1.08
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	1	201201926615	01/19/2012 21:49	Scott W Freisher	n.a.
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	2	201201926615	01/19/2012 21:49	Scott W Freisher	n.a.
06646	GC/MS HL Bulk Sample Prep	SW-846 5035A Modified	1	201201926615	01/19/2012 21:38	Scott W Freisher	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	12020SLA026	01/23/2012 02:07	Jennifer R Riggs	1
10809	BNA Soil Microwave	SW-846 3546	1	12020SLA026	01/20/2012 14:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	120245708001	01/25/2012 00:30	John W Yanzuk II	1
06949	Cadmium	SW-846 6010B	1	120245708001	01/25/2012 00:30	John W Yanzuk II	1
06951	Chromium	SW-846 6010B	1	120245708001	01/25/2012 00:30	John W Yanzuk II	1
06955	Lead	SW-846 6010B	1	120245708001	01/25/2012 00:30	John W Yanzuk II	1
06936	Selenium	SW-846 6010B	1	120245708001	01/25/2012 00:30	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	120245708001	01/25/2012 00:30	John W Yanzuk II	1
06125	Arsenic	SW-846 6020	1	120245708001A	01/26/2012 11:26	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	120255711001	01/25/2012 19:12	Nelli S Markaryan	1
05708	SW SW846 ICP/ICP MS Digest	SW-846 3050B	1	120245708001	01/24/2012 12:28	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	120245711001	01/24/2012 14:40	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	2	120255711001	01/25/2012 12:50	James L Mertz	1
00111	Moisture	SM20 2540 G	1	12025820002B	01/25/2012 18:32	Scott W Freisher	1

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Analysis Report

Sample Description: HGR-011812-TB01 Water Sample
Dow Hanging Rock, OH

LLI Sample # G5 6526794
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 16:00

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SD-TB SDG#: DHR13-08TB*

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**		**ug/l**	
10904	Acetone	67-64-1	6	U	6	1
10904	Benzene	71-43-2	0.5	U	0.5	1
10904	Bromobenzene	108-86-1	1	U	1	1
10904	Bromochloromethane	74-97-5	1	U	1	1
10904	Bromodichloromethane	75-27-4	1	U	1	1
10904	Bromoform	75-25-2	1	U	1	1
10904	Bromomethane	74-83-9	1	U	1	1
10904	2-Butanone	78-93-3	3	U	3	1
10904	n-Butylbenzene	104-51-8	1	U	1	1
10904	sec-Butylbenzene	135-98-8	1	U	1	1
10904	tert-Butylbenzene	98-06-6	1	U	1	1
10904	Carbon Disulfide	75-15-0	1	U	1	1
10904	Carbon Tetrachloride	56-23-5	1	U	1	1
10904	Chlorobenzene	108-90-7	0.8	U	0.8	1
10904	Chloroethane	75-00-3	1	U	1	1
10904	Chloroform	67-66-3	0.8	U	0.8	1
10904	Chloromethane	74-87-3	1	U	1	1
10904	2-Chlorotoluene	95-49-8	1	U	1	1
10904	4-Chlorotoluene	106-43-4	1	U	1	1
10904	Cyclohexane	110-82-7	2	U	2	1
10904	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	1
10904	Dibromochloromethane	124-48-1	1	U	1	1
10904	1,2-Dibromoethane	106-93-4	1	U	1	1
10904	Dibromomethane	74-95-3	1	U	1	1
10904	1,2-Dichlorobenzene	95-50-1	1	U	1	1
10904	1,3-Dichlorobenzene	541-73-1	1	U	1	1
10904	1,4-Dichlorobenzene	106-46-7	1	U	1	1
10904	Dichlorodifluoromethane	75-71-8	2	U	2	1
10904	1,1-Dichloroethane	75-34-3	1	U	1	1
10904	1,2-Dichloroethane	107-06-2	1	U	1	1
10904	1,1-Dichloroethene	75-35-4	0.8	U	0.8	1
10904	cis-1,2-Dichloroethene	156-59-2	0.8	U	0.8	1
10904	trans-1,2-Dichloroethene	156-60-5	0.8	U	0.8	1
10904	1,2-Dichloropropane	78-87-5	1	U	1	1
10904	1,3-Dichloropropane	142-28-9	1	U	1	1
10904	2,2-Dichloropropane	594-20-7	1	U	1	1
10904	1,1-Dichloropropene	563-58-6	1	U	1	1
10904	cis-1,3-Dichloropropene	10061-01-5	1	U	1	1
10904	trans-1,3-Dichloropropene	10061-02-6	1	U	1	1
10904	Ethylbenzene	100-41-4	0.8	U	0.8	1
10904	Freon 113	76-13-1	2	U	2	1
10904	Hexachlorobutadiene	87-68-3	2	U	2	1
10904	2-Hexanone	591-78-6	3	U	3	1
10904	Isopropylbenzene	98-82-8	1	U	1	1
10904	p-Isopropyltoluene	99-87-6	1	U	1	1
10904	Methyl Acetate	79-20-9	1	U	1	1
10904	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	1
10904	4-Methyl-2-pentanone	108-10-1	3	U	3	1
10904	Methylcyclohexane	108-87-2	1	U	1	1
10904	Methylene Chloride	75-09-2	2	U	2	1
10904	Naphthalene	91-20-3	1	U	1	1

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Analysis Report

Sample Description: HGR-011812-TB01 Water Sample
Dow Hanging Rock, OH

LLI Sample # G5 6526794
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 16:00

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SD-TB SDG#: DHR13-08TB*

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/l		ug/l	
10904	n-Propylbenzene	103-65-1	1	U	1	1
10904	Styrene	100-42-5	1	U	1	1
10904	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	1
10904	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	1
10904	Tetrachloroethene	127-18-4	0.8	U	0.8	1
10904	Toluene	108-88-3	0.7	U	0.7	1
10904	1,2,3-Trichlorobenzene	87-61-6	1	U	1	1
10904	1,2,4-Trichlorobenzene	120-82-1	1	U	1	1
10904	1,1,1-Trichloroethane	71-55-6	0.8	U	0.8	1
10904	1,1,2-Trichloroethane	79-00-5	0.8	U	0.8	1
10904	Trichloroethene	79-01-6	1	U	1	1
10904	Trichlorofluoromethane	75-69-4	2	U	2	1
10904	1,2,3-Trichloropropane	96-18-4	1	U	1	1
10904	1,2,4-Trimethylbenzene	95-63-6	1	U	1	1
10904	1,3,5-Trimethylbenzene	108-67-8	1	U	1	1
10904	Vinyl Acetate	108-05-4	2	U	2	1
10904	Vinyl Chloride	75-01-4	1	U	1	1
10904	m+p-Xylene	179601-23-1	0.8	U	0.8	1
10904	o-Xylene	95-47-6	0.8	U	0.8	1

General Sample Comments

This sample was subcontracted to another laboratory for Total Sulfide analysis.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10904	8260 Ext. Water Master	SW-846 8260B	1	Y120301AA	01/30/2012 20:41	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	Y120301AA	01/30/2012 20:41	Kevin A Sposito	1

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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1285783
Reported: 01/31/12 at 03:58 PM

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: B120241AA	Sample number(s): 6526784-6526786,6526788-6526793								
Acetone	7	U	7.	ug/kg	124		32-209		
Benzene	0.5	U	0.5	ug/kg	95		80-120		
Bromobenzene	1	U	1.	ug/kg	88		79-120		
Bromochloromethane	1	U	1.	ug/kg	100		79-124		
Bromodichloromethane	1	U	1.	ug/kg	101		78-120		
Bromoform	1	U	1.	ug/kg	96		70-120		
Bromomethane	2	U	2.	ug/kg	86		32-162		
2-Butanone	4	U	4.	ug/kg	107		46-153		
n-Butylbenzene	1	U	1.	ug/kg	88		72-120		
sec-Butylbenzene	1	U	1.	ug/kg	88		75-120		
tert-Butylbenzene	1	U	1.	ug/kg	85		75-120		
Carbon Disulfide	1	U	1.	ug/kg	87		67-122		
Carbon Tetrachloride	1	U	1.	ug/kg	108		69-122		
Chlorobenzene	1	U	1.	ug/kg	92		80-120		
Chloroethane	2	U	2.	ug/kg	79		37-154		
Chloroform	1	U	1.	ug/kg	104		80-120		
Chloromethane	2	U	2.	ug/kg	87		54-132		
2-Chlorotoluene	1	U	1.	ug/kg	85		78-120		
4-Chlorotoluene	1	U	1.	ug/kg	85		79-120		
Cyclohexane	1	U	1.	ug/kg	98		62-121		
1,2-Dibromo-3-chloropropane	2	U	2.	ug/kg	92		58-120		
Dibromochloromethane	1	U	1.	ug/kg	98		77-120		
1,2-Dibromoethane	1	U	1.	ug/kg	95		80-120		
Dibromomethane	1	U	1.	ug/kg	102		80-120		
1,2-Dichlorobenzene	1	U	1.	ug/kg	89		79-120		
1,3-Dichlorobenzene	1	U	1.	ug/kg	88		78-120		
1,4-Dichlorobenzene	1	U	1.	ug/kg	87		79-120		
Dichlorodifluoromethane	2	U	2.	ug/kg	96		20-120		
1,1-Dichloroethane	1	U	1.	ug/kg	103		80-120		
1,2-Dichloroethane	1	U	1.	ug/kg	118		71-129		
1,1-Dichloroethene	1	U	1.	ug/kg	92		73-123		
cis-1,2-Dichloroethene	1	U	1.	ug/kg	95		80-120		
trans-1,2-Dichloroethene	1	U	1.	ug/kg	93		79-120		
1,2-Dichloropropane	1	U	1.	ug/kg	99		80-120		
1,3-Dichloropropane	1	U	1.	ug/kg	97		80-120		
2,2-Dichloropropane	1	U	1.	ug/kg	101		72-123		
1,1-Dichloropropene	1	U	1.	ug/kg	100		77-120		
cis-1,3-Dichloropropene	1	U	1.	ug/kg	96		80-120		
trans-1,3-Dichloropropene	1	U	1.	ug/kg	96		77-120		
Ethylbenzene	1	U	1.	ug/kg	91		80-120		
Freon 113	2	U	2.	ug/kg	99		61-126		
Hexachlorobutadiene	2	U	2.	ug/kg	102		57-120		
2-Hexanone	3	U	3.	ug/kg	93		45-155		
Isopropylbenzene	1	U	1.	ug/kg	93		76-120		
p-Isopropyltoluene	1	U	1.	ug/kg	89		75-120		

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1285783
Reported: 01/31/12 at 03:58 PM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Methyl Acetate	2	U	2.	ug/kg	129		61-152		
Methyl Tertiary Butyl Ether	0.5	U	0.5	ug/kg	101		74-121		
4-Methyl-2-pentanone	3	U	3.	ug/kg	108		61-134		
Methylcyclohexane	1	U	1.	ug/kg	97		57-138		
Methylene Chloride	2	U	2.	ug/kg	93		76-124		
Naphthalene	1	U	1.	ug/kg	79		59-123		
n-Propylbenzene	1	U	1.	ug/kg	87		77-120		
Styrene	1	U	1.	ug/kg	86		76-120		
1,1,1,2-Tetrachloroethane	1	U	1.	ug/kg	95		80-120		
1,1,2,2-Tetrachloroethane	1	U	1.	ug/kg	89		71-123		
Tetrachloroethene	1	U	1.	ug/kg	95		77-120		
Toluene	1	U	1.	ug/kg	89		80-120		
1,2,3-Trichlorobenzene	1	U	1.	ug/kg	87		64-120		
1,2,4-Trichlorobenzene	1	U	1.	ug/kg	85		68-120		
1,1,1-Trichloroethane	1	U	1.	ug/kg	101		71-125		
1,1,2-Trichloroethane	1	U	1.	ug/kg	95		80-120		
Trichloroethene	1	U	1.	ug/kg	95		80-120		
Trichlorofluoromethane	2	U	2.	ug/kg	106		58-133		
1,2,3-Trichloropropane	1	U	1.	ug/kg	96		71-123		
1,2,4-Trimethylbenzene	1	U	1.	ug/kg	86		79-120		
1,3,5-Trimethylbenzene	1	U	1.	ug/kg	87		78-120		
Vinyl Acetate	2	U	2.	ug/kg	137	140*	56-137	2	30
Vinyl Chloride	1	U	1.	ug/kg	88		53-120		
m+p-Xylene	1	U	1.	ug/kg	92		80-120		
o-Xylene	1	U	1.	ug/kg	90		80-120		
Batch number: Y120301AA	Sample number(s): 6526794								
Acetone	6	U	6.	ug/l	130	129	49-234	0	30
Benzene	0.5	U	0.5	ug/l	104	106	79-120	1	30
Bromobenzene	1	U	1.	ug/l	101	106	80-120	4	30
Bromochloromethane	1	U	1.	ug/l	105	107	80-120	2	30
Bromodichloromethane	1	U	1.	ug/l	103	104	80-120	1	30
Bromoform	1	U	1.	ug/l	101	101	61-120	0	30
Bromomethane	1	U	1.	ug/l	87	85	44-120	2	30
2-Butanone	3	U	3.	ug/l	109	109	66-151	1	30
n-Butylbenzene	1	U	1.	ug/l	100	103	74-120	2	30
sec-Butylbenzene	1	U	1.	ug/l	103	106	78-120	2	30
tert-Butylbenzene	1	U	1.	ug/l	98	99	80-120	1	30
Carbon Disulfide	1	U	1.	ug/l	93	93	62-120	0	30
Carbon Tetrachloride	1	U	1.	ug/l	113	112	75-123	1	30
Chlorobenzene	0.8	U	0.8	ug/l	104	103	80-120	0	30
Chloroethane	1	U	1.	ug/l	77	80	49-129	4	30
Chloroform	0.8	U	0.8	ug/l	109	109	77-122	0	30
Chloromethane	1	U	1.	ug/l	84	85	60-129	1	30
2-Chlorotoluene	1	U	1.	ug/l	102	107	80-120	5	30
4-Chlorotoluene	1	U	1.	ug/l	100	103	80-120	3	30
Cyclohexane	2	U	2.	ug/l	105	106	65-125	2	30
1,2-Dibromo-3-chloropropane	2	U	2.	ug/l	108	110	56-126	1	30
Dibromochloromethane	1	U	1.	ug/l	102	105	80-120	2	30
1,2-Dibromoethane	1	U	1.	ug/l	103	105	80-120	2	30
Dibromomethane	1	U	1.	ug/l	107	107	80-120	1	30
1,2-Dichlorobenzene	1	U	1.	ug/l	102	105	80-120	2	30
1,3-Dichlorobenzene	1	U	1.	ug/l	103	105	80-120	2	30
1,4-Dichlorobenzene	1	U	1.	ug/l	103	105	80-120	2	30
Dichlorodifluoromethane	2	U	2.	ug/l	81	82	47-120	1	30
1,1-Dichloroethane	1	U	1.	ug/l	108	108	79-120	0	30
1,2-Dichloroethane	1	U	1.	ug/l	113	113	70-130	0	30
1,1-Dichloroethene	0.8	U	0.8	ug/l	98	98	74-123	0	30

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1285783
Reported: 01/31/12 at 03:58 PM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
cis-1,2-Dichloroethene	0.8	U	0.8	ug/l	105	106	80-120	1	30
trans-1,2-Dichloroethene	0.8	U	0.8	ug/l	104	103	80-120	0	30
1,2-Dichloropropane	1	U	1.	ug/l	101	103	78-120	1	30
1,3-Dichloropropane	1	U	1.	ug/l	105	107	80-120	2	30
2,2-Dichloropropane	1	U	1.	ug/l	112	112	77-124	0	30
1,1-Dichloropropene	1	U	1.	ug/l	104	105	80-120	1	30
cis-1,3-Dichloropropene	1	U	1.	ug/l	100	102	80-120	2	30
trans-1,3-Dichloropropene	1	U	1.	ug/l	102	103	79-120	1	30
Ethylbenzene	0.8	U	0.8	ug/l	102	104	79-120	2	30
Freon 113	2	U	2.	ug/l	103	102	69-128	1	30
Hexachlorobutadiene	2	U	2.	ug/l	100	101	58-120	1	30
2-Hexanone	3	U	3.	ug/l	99	99	65-136	0	30
Isopropylbenzene	1	U	1.	ug/l	102	103	77-120	2	30
p-Isopropyltoluene	1	U	1.	ug/l	103	105	80-120	2	30
Methyl Acetate	1	U	1.	ug/l	165*	167*	64-151	1	30
Methyl Tertiary Butyl Ether	0.5	U	0.5	ug/l	108	110	76-120	2	30
4-Methyl-2-pentanone	3	U	3.	ug/l	99	102	70-121	3	30
Methylcyclohexane	1	U	1.	ug/l	101	104	71-132	2	30
Methylene Chloride	2	U	2.	ug/l	103	103	80-120	0	30
Naphthalene	1	U	1.	ug/l	103	103	62-120	0	30
n-Propylbenzene	1	U	1.	ug/l	107	108	80-120	0	30
Styrene	1	U	1.	ug/l	100	101	80-120	2	30
1,1,1,2-Tetrachloroethane	1	U	1.	ug/l	103	105	80-120	2	30
1,1,2,2-Tetrachloroethane	1	U	1.	ug/l	104	107	71-120	3	30
Tetrachloroethene	0.8	U	0.8	ug/l	101	104	80-121	3	30
Toluene	0.7	U	0.7	ug/l	102	103	79-120	0	30
1,2,3-Trichlorobenzene	1	U	1.	ug/l	100	102	65-120	2	30
1,2,4-Trichlorobenzene	1	U	1.	ug/l	99	102	67-120	3	30
1,1,1-Trichloroethane	0.8	U	0.8	ug/l	106	107	75-127	1	30
1,1,2-Trichloroethane	0.8	U	0.8	ug/l	105	106	80-120	1	30
Trichloroethene	1	U	1.	ug/l	102	105	80-120	3	30
Trichlorofluoromethane	2	U	2.	ug/l	101	102	64-129	1	30
1,2,3-Trichloropropane	1	U	1.	ug/l	108	111	80-120	3	30
1,2,4-Trimethylbenzene	1	U	1.	ug/l	107	108	74-120	1	30
1,3,5-Trimethylbenzene	1	U	1.	ug/l	104	107	75-120	3	30
Vinyl Acetate	2	U	2.	ug/l	124	125	57-147	1	30
Vinyl Chloride	1	U	1.	ug/l	87	87	65-125	0	30
m+p-Xylene	0.8	U	0.8	ug/l	103	103	80-120	0	30
o-Xylene	0.8	U	0.8	ug/l	100	101	80-120	1	30

Batch number: 12020SLA026 Sample number(s): 6526784-6526786,6526788-6526793

Acenaphthene	3	U	3.	ug/kg	98	83-111
Acenaphthylene	3	U	3.	ug/kg	103	68-120
Anthracene	3	U	3.	ug/kg	99	83-111
Benzo(a)anthracene	3	U	3.	ug/kg	89	82-111
Benzo(a)pyrene	3	U	3.	ug/kg	95	63-138
Benzo(b)fluoranthene	3	U	3.	ug/kg	95	61-133
Benzo(g,h,i)perylene	3	U	3.	ug/kg	103	63-130
Benzo(k)fluoranthene	3	U	3.	ug/kg	91	71-135
Benzyl alcohol	170	U	170.	ug/kg	72	68-111
1,1'-Biphenyl	17	U	17.	ug/kg	94	82-106
4-Bromophenyl-phenylether	17	U	17.	ug/kg	104	79-117
Butylbenzylphthalate	67	U	67.	ug/kg	93	77-125
Di-n-butylphthalate	67	U	67.	ug/kg	98	79-112
Carbazole	17	U	17.	ug/kg	93	83-111
4-Chloro-3-methylphenol	17	U	17.	ug/kg	88	74-119
4-Chloroaniline	17	U	17.	ug/kg	27	10-97
bis(2-Chloroethoxy)methane	17	U	17.	ug/kg	90	82-113

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1285783
Reported: 01/31/12 at 03:58 PM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
bis(2-Chloroethyl)ether	17	U	17.	ug/kg	89		77-115		
bis(2-Chloroisopropyl)ether	17	U	17.	ug/kg	83		65-122		
2-Chloronaphthalene	7	U	7.	ug/kg	120*		50-117		
2-Chlorophenol	17	U	17.	ug/kg	92		83-119		
4-Chlorophenyl-phenylether	17	U	17.	ug/kg	98		79-110		
Chrysene	3	U	3.	ug/kg	88		81-111		
Dibenz(a,h)anthracene	3	U	3.	ug/kg	101		67-129		
Dibenzofuran	17	U	17.	ug/kg	95		85-110		
3,3'-Dichlorobenzidine	100	U	100.	ug/kg	45		17-116		
2,4-Dichlorophenol	17	U	17.	ug/kg	95		87-117		
Diethylphthalate	67	U	67.	ug/kg	96		82-113		
2,4-Dimethylphenol	17	U	17.	ug/kg	94		83-120		
Dimethylphthalate	67	U	67.	ug/kg	96		85-111		
4,6-Dinitro-2-methylphenol	170	U	170.	ug/kg	89		60-113		
2,4-Dinitrophenol	300	U	300.	ug/kg	87		39-126		
2,4-Dinitrotoluene	67	U	67.	ug/kg	96		80-116		
2,6-Dinitrotoluene	17	U	17.	ug/kg	100		79-115		
1,4-Dioxane	100	U	100.	ug/kg	57		38-75		
bis(2-Ethylhexyl)phthalate	67	U	67.	ug/kg	88		75-124		
Fluoranthene	3	U	3.	ug/kg	97		80-113		
Fluorene	3	U	3.	ug/kg	97		81-117		
Hexachlorobenzene	3	U	3.	ug/kg	106		79-115		
Hexachlorocyclopentadiene	170	U	170.	ug/kg	104		64-127		
Hexachloroethane	33	U	33.	ug/kg	85		76-109		
Indeno(1,2,3-cd)pyrene	3	U	3.	ug/kg	99		64-128		
Isophorone	17	U	17.	ug/kg	87		72-107		
2-Methylnaphthalene	3	U	3.	ug/kg	91		79-110		
2-Methylphenol	17	U	17.	ug/kg	93		80-119		
4-Methylphenol	17	U	17.	ug/kg	82		74-116		
2-Nitroaniline	17	U	17.	ug/kg	96		83-118		
3-Nitroaniline	67	U	67.	ug/kg	78		66-114		
4-Nitroaniline	67	U	67.	ug/kg	66		52-92		
Nitrobenzene	17	U	17.	ug/kg	90		78-122		
2-Nitrophenol	17	U	17.	ug/kg	94		81-114		
4-Nitrophenol	170	U	170.	ug/kg	77		57-131		
N-Nitroso-di-n-propylamine	17	U	17.	ug/kg	78		70-113		
N-Nitrosodiphenylamine	17	U	17.	ug/kg	98		86-112		
Di-n-octylphthalate	67	U	67.	ug/kg	94		65-141		
Pentachlorophenol	33	U	33.	ug/kg	93		50-133		
Phenanthrene	3	U	3.	ug/kg	93		83-109		
Phenol	17	U	17.	ug/kg	85		74-115		
Pyrene	3	U	3.	ug/kg	91		80-121		
2,4,5-Trichlorophenol	17	U	17.	ug/kg	98		84-109		
2,4,6-Trichlorophenol	17	U	17.	ug/kg	101		88-114		
Batch number: 120245708001	Sample number(s): 6526784-6526793								
Barium	0.0176	U	0.0176	mg/kg	101		80-120		
Cadmium	0.0196	U	0.0196	mg/kg	100		80-120		
Chromium	0.137	U	0.137	mg/kg	100		80-120		
Lead	0.216	U	0.216	mg/kg	102		80-120		
Selenium	0.667	U	0.667	mg/kg	100		80-120		
Silver	0.0814	U	0.0814	mg/kg	99		80-120		
Batch number: 120245708001A	Sample number(s): 6526784-6526793								
Arsenic	0.0784	U	0.0784	mg/kg	109		80-120		
Batch number: 120255711001	Sample number(s): 6526784-6526793								
Mercury	0.0067	U	0.0067	mg/kg	99		80-120		

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1285783
Reported: 01/31/12 at 03:58 PM

Analysis Name	Blank Result	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 12025820002B	Sample number(s): 6526784-6526793							
Moisture				100		99-101		
Moisture				100		99-101		
Moisture Duplicate				100		99-101		

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: B120241AA	Sample number(s): 6526784-6526786,6526788-6526793 UNSPK: 6526784								
Acetone	119	128	31-195	7	30				
Benzene	94	104	55-143	11	30				
Bromobenzene	70	115	43-139	48*	30				
Bromochloromethane	96	105	60-137	10	30				
Bromodichloromethane	93	101	53-136	8	30				
Bromoform	74	80	38-124	8	30				
Bromomethane	87	95	42-168	9	30				
2-Butanone	104	102	37-163	2	30				
n-Butylbenzene	63	112	30-146	57*	30				
sec-Butylbenzene	69	127	33-157	59*	30				
tert-Butylbenzene	65	117	41-152	57*	30				
Carbon Disulfide	85	99	48-146	16	30				
Carbon Tetrachloride	106	119	45-153	12	30				
Chlorobenzene	78	100	49-135	25	30				
Chloroethane	82	89	39-152	9	30				
Chloroform	101	112	61-142	11	30				
Chloromethane	95	106	51-163	11	30				
2-Chlorotoluene	67	112	42-146	51*	30				
4-Chlorotoluene	65	108	39-145	50*	30				
Cyclohexane	90	112	57-151	23	30				
1,2-Dibromo-3-chloropropane	69	97	30-139	34*	30				
Dibromochloromethane	83	94	51-128	13	30				
1,2-Dibromoethane	84	95	54-129	13	30				
Dibromomethane	91	101	57-130	11	30				
1,2-Dichlorobenzene	58	95	36-133	49*	30				
1,3-Dichlorobenzene	60	100	34-134	50*	30				
1,4-Dichlorobenzene	59	97	35-136	49*	30				
Dichlorodifluoromethane	106	116	26-151	10	30				
1,1-Dichloroethane	103	113	63-142	10	30				
1,2-Dichloroethane	113	121	68-131	7	30				
1,1-Dichloroethene	94	104	61-149	11	30				
cis-1,2-Dichloroethene	93	104	60-136	12	30				
trans-1,2-Dichloroethene	92	101	59-142	10	30				
1,2-Dichloropropane	94	104	62-135	10	30				
1,3-Dichloropropane	90	103	58-129	14	30				
2,2-Dichloropropane	105	115	53-147	9	30				
1,1-Dichloropropene	96	111	54-145	15	30				
cis-1,3-Dichloropropene	86	94	51-131	10	30				
trans-1,3-Dichloropropene	83	97	49-129	15	30				
Ethylbenzene	78	104	44-141	29	30				

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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1285783
Reported: 01/31/12 at 03:58 PM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Freon 113	98	113	56-156	15	30				
Hexachlorobutadiene	61	118	10-155	65*	30				
2-Hexanone	86	93	32-160	8	30				
Isopropylbenzene	69	102	38-144	35*	30				
p-Isopropyltoluene	65	117	29-152	58*	30				
Methyl Acetate	104	105	48-161	1	30				
Methyl Tertiary Butyl Ether	97	104	55-129	8	30				
4-Methyl-2-pentanone	96	98	46-139	2	30				
Methylcyclohexane	84	96	39-168	14	30				
Methylene Chloride	90	110	61-141	20	30				
Naphthalene	37	55	10-138	40*	30				
n-Propylbenzene	72	125	39-157	54*	30				
Styrene	68	90	35-134	29	30				
1,1,1,2-Tetrachloroethane	82	104	52-130	24	30				
1,1,2,2-Tetrachloroethane	78	110	40-152	35*	30				
Tetrachloroethene	82	108	42-149	27	30				
Toluene	85	106	50-146	21	30				
1,2,3-Trichlorobenzene	37	58	10-140	45*	30				
1,2,4-Trichlorobenzene	40	64	10-136	47*	30				
1,1,1-Trichloroethane	100	112	64-142	12	30				
1,1,2-Trichloroethane	87	102	54-139	16	30				
Trichloroethene	89	103	53-144	15	30				
Trichlorofluoromethane	152	121	47-163	23	30				
1,2,3-Trichloropropane	85	121	45-154	35*	30				
1,2,4-Trimethylbenzene	65	111	37-149	53*	30				
1,3,5-Trimethylbenzene	68	116	38-150	53*	30				
Vinyl Chloride	96	105	50-154	9	30				
m+p-Xylene	76	101	44-137	28	30				
o-Xylene	72	96	42-137	28	30				
Batch number: 12020SLA026	Sample number(s): 6526784-6526786,6526788-6526793 UNSPK: 6526784								
Acenaphthene	96	99	41-135	4	30				
Acenaphthylene	95	83	47-137	13	30				
Anthracene	95	80	40-147	15	30				
Benzo(a)anthracene	86	73	32-150	12	30				
Benzo(a)pyrene	92	74	57-129	16	30				
Benzo(b)fluoranthene	94	71	53-131	19	30				
Benzo(g,h,i)perylene	90	68	60-123	22	30				
Benzo(k)fluoranthene	93	75	61-131	17	30				
Benzyl alcohol	0*	0*	63-128	0	30				
1,1'-Biphenyl	106	64	51-127	29	30				
4-Bromophenyl-phenylether	93	87	46-131	6	30				
Butylbenzylphthalate	87	77	26-161	13	30				
Di-n-butylphthalate	99	83	32-139	18	30				
Carbazole	92	85	36-148	8	30				
4-Chloro-3-methylphenol	97	81	33-144	18	30				
4-Chloroaniline	30	54	11-114	56*	30				
bis(2-Chloroethoxy)methane	91	77	44-132	16	30				
bis(2-Chloroethyl)ether	105	82	45-139	24	30				
bis(2-Chloroisopropyl)ether	82	70	30-139	16	30				
2-Chloronaphthalene	95	78	22-131	20	30				
2-Chlorophenol	95	76	29-151	23	30				
4-Chlorophenyl-phenylether	88	83	42-130	6	30				

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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1285783
Reported: 01/31/12 at 03:58 PM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Chrysene	79	68*	76-114	10	30				
Dibenz(a,h)anthracene	94	73	37-151	24	30				
Dibenzofuran	96	83	38-148	14	30				
3,3'-Dichlorobenzidine	0*	0*	10-143	0	30				
2,4-Dichlorophenol	100	81	35-142	22	30				
Diethylphthalate	90	79	32-137	13	30				
2,4-Dimethylphenol	94	76	27-143	21	30				
Dimethylphthalate	94	79	26-141	17	30				
4,6-Dinitro-2-methylphenol	100	113	10-148	12	30				
2,4-Dinitrophenol	0*	0*	20-143	0	30				
2,4-Dinitrotoluene	84	75	27-147	12	30				
2,6-Dinitrotoluene	85	80	44-140	6	30				
1,4-Dioxane	69	0*	31-77	200*	30				
bis(2-Ethylhexyl)phthalate	99	90	38-151	10	30				
Fluoranthene	107	78	48-122	16	30				
Fluorene	102	77	35-140	23	30				
Hexachlorobenzene	93	85	53-137	9	30				
Hexachlorocyclopentadiene	0*	0*	10-153	0	30				
Hexachloroethane	29*	55*	71-104	62*	30				
Indeno(1,2,3-cd)pyrene	89	69	61-123	19	30				
Isophorone	86	76	54-122	12	30				
2-Methylnaphthalene	94	79	23-141	16	30				
2-Methylphenol	93	82	30-145	13	30				
4-Methylphenol	83	74	36-149	12	30				
2-Nitroaniline	144	103	46-146	33*	30				
3-Nitroaniline	61	70	34-134	13	30				
4-Nitroaniline	95	117	26-124	21	30				
Nitrobenzene	95	81	37-139	16	30				
2-Nitrophenol	30	62	25-151	68*	30				
4-Nitrophenol	0*	0*	15-149	0	30				
N-Nitroso-di-n-propylamine	86	69	46-128	23	30				
N-Nitrosodiphenylamine	86	82	33-148	5	30				
Di-n-octylphthalate	94	81	43-149	14	30				
Pentachlorophenol	38	56	23-145	38*	30				
Phenanthrene	98	78	34-147	14	30				
Phenol	101	83	39-151	20	30				
Pyrene	95	74*	76-124	14	30				
2,4,5-Trichlorophenol	86	77	25-143	12	30				
2,4,6-Trichlorophenol	82	82	41-142	0	30				
Batch number: 120245708001	Sample number(s): 6526784-6526793 UNSPK: 6526784 BKG: 6526784								
Barium	102	105	75-125	4	20	69.0	75.7	9	20
Cadmium	95	133*	75-125	32*	20	0.497	0.519	4 (1)	20
Chromium	96	127*	75-125	12	20	32.6	37.5	14	20
Lead	41*	101	75-125	27*	20	23.2	16.3	35*	20
Selenium	100	111	75-125	12	20	0.673 U	1.45 J	200* (1)	20
Silver	98	98	75-125	3	20	0.0822 U	0.328 J	200* (1)	20
Batch number: 120245708001A	Sample number(s): 6526784-6526793 UNSPK: 6526784 BKG: 6526784								
Arsenic	147*	141*	75-125	1	20	4.53	4.86	7	20
Batch number: 120255711001	Sample number(s): 6526784-6526793 UNSPK: 6526784 BKG: 6526784								
Mercury	101	100	80-120	4	20	0.0155 J	0.0120 J	25* (1)	20

*- Outside of specification
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(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1285783
Reported: 01/31/12 at 03:58 PM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 12025820002B	Sample number(s): 6526784-6526793					BKG: 6526784			
Moisture						29.9	34.2	13	15
Moisture						29.9	34.2	13	15
Moisture Duplicate						29.9	34.2	13	15

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 8260 Ext. Soil Master
Batch number: B120241AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
6526784	107	104	105	93
6526784	102	86	115	87
RE				
6526785	107	107	102	101
6526786	104	100	107	94
6526788	108	104	100	95
6526789	108	102	102	94
6526790	105	101	104	91
6526791	108	100	100	94
6526792	105	100	99	94
6526793	105	98	101	94
Blank	105	103	100	97
LCS	106	102	102	103
MS	107	107	102	101
MSD	104	100	107	94
Limits:	71-114	70-109	70-123	70-111

Analysis Name: 8260 Ext. Water Master
Batch number: Y120301AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
6526794	105	102	98	95
Blank	104	102	100	96
LCS	104	103	101	103
LCSD	104	104	100	101
Limits:	80-116	77-113	80-113	78-113

Analysis Name: TCL 8270 (microwave)
Batch number: 12020SLA026

	Phenol-d6	2-Fluorophenol	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
6526784	65	70	65	58	66	72
6526785	86	97	73	82	89	93

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2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1285783
Reported: 01/31/12 at 03:58 PM

Surrogate Quality Control

6526786	74	77	79	71	76	79
6526788	68	74	75	70	77	84
6526789	58	62	62	57	63	70
6526790	77	89	80	79	85	91
6526791	77	87	87	76	84	87
6526792	80	90	95	83	90	96
6526793	77	88	89	78	85	90
Blank	87	100	101	88	98	107
LCS	85	93	98	82	95	98
MS	86	97	73	82	89	93
MSD	74	77	79	71	76	79
Limits:	42-130	39-136	28-139	45-123	56-121	43-124

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Analysis Request/ Environmental Services Chain of Custody

Lancaster Laboratories

For Lancaster Laboratories use only

Acct. # 11372 Group# 1285783 Sample # 6526784-94

COC # 214015

Please print. Instructions on reverse side correspond with circled numbers.

For Lab Use Only
FSC:
SCR#: 116277

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

(1)
Client: CH2M HILL Acct. #:
Project Name/#: Dow Hanging Rock/420671 PWSID #:
Project Manager: Mark Holland/CH2M HILL P.O.#:
Sampler: Jeff Johnson/CH2M HILL Quote #:
Name of state where samples were collected: OHIO

(2) (3) (4) (5) (6)

Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water	Other SEDIMENT	Total # of Containers	VOC	SVOC	RCRA 8 Metals	Remarks
S18-SD01	1/18/12	0945	X				X	2	X	X	X	
S18-SD01-MS/MSD	1/18/12	0945	X				X	4	X	X	X	
S18-SD02	1/18/12	1000	X				X	2	X	X	X	
HGR-011812-FD02	1/18/12	1000	X				X	2	X	X	X	
S17-SD01	1/18/12	1015	X				X	2	X	X	X	
~~S18-SD02~~ S18-[illegible]03	1/18/12	1330	X				X	2	X	X	X	
S18-SD04	1/18/12	1400	X				X	2	X	X	X	
S18-SD05	1/18/12	1415	X				X	2	X	X	X	
HGR-011812-TB01	1/18/12	1600	X			X		2	X			HCL Preserved

(7) **Turnaround Time Requested** (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed:
Rush results requested by (please circle): Phone Fax E-mail
Phone #: Fax #:
E-mail address:

(8) **Data Package Options** (please circle if required)
Type I (validation/NJ Reg) TX TRRP-13
Type II (Tier II) MA MCP CT RCP
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)

SDG Complete? Yes No

Site-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate volume.)
Internal COC Required? Yes / No

(9)

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	1/12/12	1410	[signature]	1/19/12	0900
[signature]	1/19/12	1700			
			Brandy Bauly	1-19-12	945

Lancaster Laboratories, Inc., 2425 New Holland Pike, Lancaster, PA 17601 (717) 656-2300 Fax: (717) 656-6766
Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client.

2102.03

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

J estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike sample not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*****	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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ANALYTICAL RESULTS

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425

Prepared for:

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

January 30, 2012

Project: Dow Hanging Rock, OH

Submittal Date: 01/19/2012
Group Number: 1285784
SDG: DHR14
PO Number: 420671-04
Release Number: DHR14
State of Sample Origin: OH

Client Sample Description	Lancaster Labs (LLI) #
HGR-IDW-54 Composite Soil	6526795
HGR-IDW-55 Composite Soil	6526796

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Shane Lowe
ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Rachel Grand
1 COPY TO	Data Package Group	

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Questions? Contact your Client Services Representative
Wendy A Kozma at (717) 656-2300 Ext. 1522

Respectfully Submitted,

Mark A. Ratcliff
Senior Specialist

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Analysis Report

Sample Description: HGR-IDW-54 Composite Soil
Dow Hanging Rock, OH

LLI Sample # SW 6526795
LLI Group # 1285784
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 13:15 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/30/2012 13:38

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

IDW54 SDG#: DHR14-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	67		9	1.05
10949	Benzene	71-43-2	0.6	U	0.6	1.05
10949	Bromobenzene	108-86-1	1	U	1	1.05
10949	Bromochloromethane	74-97-5	1	U	1	1.05
10949	Bromodichloromethane	75-27-4	1	U	1	1.05
10949	Bromoform	75-25-2	1	U	1	1.05
10949	Bromomethane	74-83-9	2	U	2	1.05
10949	2-Butanone	78-93-3	12	J	5	1.05
10949	n-Butylbenzene	104-51-8	1	U	1	1.05
10949	sec-Butylbenzene	135-98-8	1	U	1	1.05
10949	tert-Butylbenzene	98-06-6	1	U	1	1.05
10949	Carbon Disulfide	75-15-0	1	U	1	1.05
10949	Carbon Tetrachloride	56-23-5	1	U	1	1.05
10949	Chlorobenzene	108-90-7	1	U	1	1.05
10949	Chloroethane	75-00-3	2	U	2	1.05
10949	Chloroform	67-66-3	1	U	1	1.05
10949	Chloromethane	74-87-3	2	U	2	1.05
10949	2-Chlorotoluene	95-49-8	1	U	1	1.05
10949	4-Chlorotoluene	106-43-4	1	U	1	1.05
10949	Cyclohexane	110-82-7	1	U	1	1.05
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	1.05
10949	Dibromochloromethane	124-48-1	1	U	1	1.05
10949	1,2-Dibromoethane	106-93-4	1	U	1	1.05
10949	Dibromomethane	74-95-3	1	U	1	1.05
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	1.05
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	1.05
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	1.05
10949	Dichlorodifluoromethane	75-71-8	2	U	2	1.05
10949	1,1-Dichloroethane	75-34-3	1	U	1	1.05
10949	1,2-Dichloroethane	107-06-2	1	U	1	1.05
10949	1,1-Dichloroethene	75-35-4	1	U	1	1.05
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	1.05
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	1.05
10949	1,2-Dichloropropane	78-87-5	1	U	1	1.05
10949	1,3-Dichloropropane	142-28-9	1	U	1	1.05
10949	2,2-Dichloropropane	594-20-7	1	U	1	1.05
10949	1,1-Dichloropropene	563-58-6	1	U	1	1.05
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	1.05
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	1.05
10949	Ethylbenzene	100-41-4	1	U	1	1.05
10949	Freon 113	76-13-1	2	U	2	1.05
10949	Hexachlorobutadiene	87-68-3	2	U	2	1.05
10949	2-Hexanone	591-78-6	4	U	4	1.05
10949	Isopropylbenzene	98-82-8	1	U	1	1.05
10949	p-Isopropyltoluene	99-87-6	1	U	1	1.05
10949	Methyl Acetate	79-20-9	2	U	2	1.05
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.6	U	0.6	1.05
10949	4-Methyl-2-pentanone	108-10-1	4	U	4	1.05
10949	Methylcyclohexane	108-87-2	1	U	1	1.05
10949	Methylene Chloride	75-09-2	4	J	2	1.05
10949	Naphthalene	91-20-3	41		1	1.05

Sample Description: HGR-IDW-54 Composite Soil
Dow Hanging Rock, OH

LLI Sample # SW 6526795
LLI Group # 1285784
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 13:15 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/30/2012 13:38

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

IDW54 SDG#: DHR14-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	1.05
10949	Styrene	100-42-5	1	U	1	1.05
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	1.05
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	1.05
10949	Tetrachloroethene	127-18-4	1	U	1	1.05
10949	Toluene	108-88-3	1	U	1	1.05
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	1.05
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	1.05
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	1.05
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	1.05
10949	Trichloroethene	79-01-6	1	U	1	1.05
10949	Trichlorofluoromethane	75-69-4	2	U	2	1.05
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	1.05
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	1.05
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	1.05
10949	Vinyl Acetate	108-05-4	2	U	2	1.05
10949	Vinyl Chloride	75-01-4	1	U	1	1.05
10949	m+p-Xylene	179601-23-1	1	U	1	1.05
10949	o-Xylene	95-47-6	1	U	1	1.05
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	19,000		39	10
10727	Acenaphthylene	208-96-8	1,500		39	10
10727	Anthracene	120-12-7	13,000		39	10
10727	Benzo(a)anthracene	56-55-3	18,000		39	10
10727	Benzo(a)pyrene	50-32-8	15,000		39	10
10727	Benzo(b)fluoranthene	205-99-2	18,000		39	10
10727	Benzo(g,h,i)perylene	191-24-2	7,900		39	10
10727	Benzo(k)fluoranthene	207-08-9	8,400		39	10
10727	Benzyl alcohol	100-51-6	1,900	U	1,900	10
10727	1,1'-Biphenyl	92-52-4	3,200		190	10
10727	4-Bromophenyl-phenylether	101-55-3	190	U	190	10
10727	Butylbenzylphthalate	85-68-7	780	U	780	10
10727	Di-n-butylphthalate	84-74-2	780	U	780	10
10727	Carbazole	86-74-8	6,400		190	10
10727	4-Chloro-3-methylphenol	59-50-7	190	U	190	10
10727	4-Chloroaniline	106-47-8	190	U	190	10
10727	bis(2-Chloroethoxy)methane	111-91-1	190	U	190	10
10727	bis(2-Chloroethyl)ether	111-44-4	190	U	190	10
10727	2-Chloronaphthalene	91-58-7	82	U	82	10
10727	2-Chlorophenol	95-57-8	190	U	190	10
10727	4-Chlorophenyl-phenylether	7005-72-3	190	U	190	10
10727	Chrysene	218-01-9	17,000		39	10
10727	Dibenz(a,h)anthracene	53-70-3	1,700		39	10
10727	Dibenzofuran	132-64-9	16,000		190	10
10727	3,3'-Dichlorobenzidine	91-94-1	1,200	U	1,200	10
10727	2,4-Dichlorophenol	120-83-2	190	U	190	10
10727	Diethylphthalate	84-66-2	780	U	780	10
10727	2,4-Dimethylphenol	105-67-9	190	U	190	10
10727	Dimethylphthalate	131-11-3	780	U	780	10
10727	4,6-Dinitro-2-methylphenol	534-52-1	1,900	U	1,900	10

Sample Description: HGR-IDW-54 Composite Soil
Dow Hanging Rock, OH

LLI Sample # SW 6526795
LLI Group # 1285784
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 13:15 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/30/2012 13:38

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

IDW54 SDG#: DHR14-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C			**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	3,500	U	3,500	10
10727	2,4-Dinitrotoluene	121-14-2	780	U	780	10
10727	2,6-Dinitrotoluene	606-20-2	190	U	190	10
10727	1,4-Dioxane	123-91-1	1,200	U	1,200	10
10727	bis(2-Ethylhexyl)phthalate	117-81-7	780	U	780	10
10727	Fluoranthene	206-44-0	50,000	E	39	10
10727	Fluorene	86-73-7	18,000		39	10
10727	Hexachlorobenzene	118-74-1	39	U	39	10
10727	Hexachlorocyclopentadiene	77-47-4	1,900	U	1,900	10
10727	Hexachloroethane	67-72-1	390	U	390	10
10727	Indeno(1,2,3-cd)pyrene	193-39-5	7,800		39	10
10727	Isophorone	78-59-1	190	U	190	10
10727	2-Methylnaphthalene	91-57-6	13,000		39	10
10727	2-Methylphenol	95-48-7	190	U	190	10
10727	4-Methylphenol	106-44-5	190	U	190	10
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	190	U	190	10
10727	3-Nitroaniline	99-09-2	780	U	780	10
10727	4-Nitroaniline	100-01-6	780	U	780	10
10727	Nitrobenzene	98-95-3	190	U	190	10
10727	2-Nitrophenol	88-75-5	190	U	190	10
10727	4-Nitrophenol	100-02-7	1,900	U	1,900	10
10727	N-Nitroso-di-n-propylamine	621-64-7	190	U	190	10
10727	N-Nitrosodiphenylamine	86-30-6	190	U	190	10
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	780	U	780	10
10727	Pentachlorophenol	87-86-5	390	U	390	10
10727	Phenanthrene	85-01-8	56,000	E	39	10
10727	Phenol	108-95-2	190	U	190	10
10727	Pyrene	129-00-0	37,000		39	10
10727	2,4,5-Trichlorophenol	95-95-4	190	U	190	10
10727	2,4,6-Trichlorophenol	88-06-2	190	U	190	10
Trial ID: DL						
10727	Acenaphthene	83-32-9	21,000		390	100
10727	Acenaphthylene	208-96-8	2,300		390	100
10727	Anthracene	120-12-7	15,000		390	100
10727	Benzo(a)anthracene	56-55-3	19,000		390	100
10727	Benzo(a)pyrene	50-32-8	16,000		390	100
10727	Benzo(b)fluoranthene	205-99-2	21,000		390	100
10727	Benzo(g,h,i)perylene	191-24-2	8,400		390	100
10727	Benzo(k)fluoranthene	207-08-9	8,100		390	100
10727	Benzyl alcohol	100-51-6	19,000	U	19,000	100
10727	1,1'-Biphenyl	92-52-4	3,500	J	1,900	100
10727	4-Bromophenyl-phenylether	101-55-3	1,900	U	1,900	100
10727	Butylbenzylphthalate	85-68-7	7,800	U	7,800	100
10727	Di-n-butylphthalate	84-74-2	7,800	U	7,800	100

Sample Description: HGR-IDW-54 Composite Soil
Dow Hanging Rock, OH

LLI Sample # SW 6526795
LLI Group # 1285784
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 13:15 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/30/2012 13:38

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

IDW54 SDG#: DHR14-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C			**ug/kg**		**ug/kg**	
10727	Carbazole	86-74-8	7,200		1,900	100
10727	4-Chloro-3-methylphenol	59-50-7	1,900	U	1,900	100
10727	4-Chloroaniline	106-47-8	1,900	U	1,900	100
10727	bis(2-Chloroethoxy)methane	111-91-1	1,900	U	1,900	100
10727	bis(2-Chloroethyl)ether	111-44-4	1,900	U	1,900	100
10727	2-Chloronaphthalene	91-58-7	820	U	820	100
10727	2-Chlorophenol	95-57-8	1,900	U	1,900	100
10727	4-Chlorophenyl-phenylether	7005-72-3	1,900	U	1,900	100
10727	Chrysene	218-01-9	20,000		390	100
10727	Dibenz(a,h)anthracene	53-70-3	1,900	J	390	100
10727	Dibenzofuran	132-64-9	17,000		1,900	100
10727	3,3'-Dichlorobenzidine	91-94-1	12,000	U	12,000	100
10727	2,4-Dichlorophenol	120-83-2	1,900	U	1,900	100
10727	Diethylphthalate	84-66-2	7,800	U	7,800	100
10727	2,4-Dimethylphenol	105-67-9	1,900	U	1,900	100
10727	Dimethylphthalate	131-11-3	7,800	U	7,800	100
10727	4,6-Dinitro-2-methylphenol	534-52-1	19,000	U	19,000	100
10727	2,4-Dinitrophenol	51-28-5	35,000	U	35,000	100
10727	2,4-Dinitrotoluene	121-14-2	7,800	U	7,800	100
10727	2,6-Dinitrotoluene	606-20-2	1,900	U	1,900	100
10727	1,4-Dioxane	123-91-1	12,000	U	12,000	100
10727	bis(2-Ethylhexyl)phthalate	117-81-7	7,800	U	7,800	100
10727	Fluoranthene	206-44-0	63,000		390	100
10727	Fluorene	86-73-7	19,000		390	100
10727	Hexachlorobenzene	118-74-1	390	U	390	100
10727	Hexachlorocyclopentadiene	77-47-4	19,000	U	19,000	100
10727	Hexachloroethane	67-72-1	3,900	U	3,900	100
10727	Indeno(1,2,3-cd)pyrene	193-39-5	8,500		390	100
10727	Isophorone	78-59-1	1,900	U	1,900	100
10727	2-Methylnaphthalene	91-57-6	15,000		390	100
10727	2-Methylphenol	95-48-7	1,900	U	1,900	100
10727	4-Methylphenol	106-44-5	1,900	U	1,900	100
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	1,900	U	1,900	100
10727	3-Nitroaniline	99-09-2	7,800	U	7,800	100
10727	4-Nitroaniline	100-01-6	7,800	U	7,800	100
10727	Nitrobenzene	98-95-3	1,900	U	1,900	100
10727	2-Nitrophenol	88-75-5	1,900	U	1,900	100
10727	4-Nitrophenol	100-02-7	19,000	U	19,000	100
10727	N-Nitroso-di-n-propylamine	621-64-7	1,900	U	1,900	100
10727	N-Nitrosodiphenylamine	86-30-6	1,900	U	1,900	100
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	7,800	U	7,800	100
10727	Pentachlorophenol	87-86-5	3,900	U	3,900	100
10727	Phenanthrene	85-01-8	73,000		390	100
10727	Phenol	108-95-2	1,900	U	1,900	100
10727	Pyrene	129-00-0	43,000		390	100

Sample Description: HGR-IDW-54 Composite Soil
Dow Hanging Rock, OH

LLI Sample # SW 6526795
LLI Group # 1285784
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 13:15 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/30/2012 13:38

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

IDW54 SDG#: DHR14-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4,5-Trichlorophenol	95-95-4	1,900	U	1,900	100
10727	2,4,6-Trichlorophenol	88-06-2	1,900	U	1,900	100
	Reporting limits were raised due to interference from the sample matrix.					
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	135		0.0208	1
06949	Cadmium	7440-43-9	0.0415 J		0.0231	1
06951	Chromium	7440-47-3	21.2		0.162	1
06955	Lead	7439-92-1	15.8		0.254	1
06936	Selenium	7782-49-2	3.08		0.785	1
06966	Silver	7440-22-4	0.0958 U		0.0958	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	14.6		0.0923	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0251 J		0.0080	1
Wet Chemistry	**SM20 2540 G**		**%**		**%**	
00111	Moisture	n.a.	14.2		0.50	1
	"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.					

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	B120241AA	01/24/2012 16:38	Chelsea B Eastep	1.05
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	1	201201926615	01/19/2012 21:49	Scott W Freisher	n.a.
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	2	201201926615	01/19/2012 21:49	Scott W Freisher	n.a.
06646	GC/MS HL Bulk Sample Prep	SW-846 5035A Modified	1	201201926615	01/19/2012 21:40	Scott W Freisher	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	12020SLA026	01/23/2012 16:54	Matthew S Woods	10
10727	TCL 8270 (microwave)	SW-846 8270C	2	12020SLA026	01/23/2012 17:18	Matthew S Woods	100
10809	BNA Soil Microwave	SW-846 3546	1	12020SLA026	01/20/2012 14:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	120245708001	01/25/2012 00:34	John W Yanzuk II	1
06949	Cadmium	SW-846 6010B	1	120245708001	01/25/2012 00:34	John W Yanzuk II	1
06951	Chromium	SW-846 6010B	1	120245708001	01/25/2012 00:34	John W Yanzuk II	1
06955	Lead	SW-846 6010B	1	120245708001	01/25/2012 00:34	John W Yanzuk II	1
06936	Selenium	SW-846 6010B	1	120245708001	01/25/2012 00:34	John W Yanzuk II	1

Sample Description: HGR-IDW-54 Composite Soil
Dow Hanging Rock, OH

LLI Sample # SW 6526795
LLI Group # 1285784
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 13:15 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/30/2012 13:38

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

IDW54 SDG#: DHR14-01

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06966	Silver	SW-846 6010B	1	120245708001	01/25/2012 00:34	John W Yanzuk II	1
06125	Arsenic	SW-846 6020	1	120245708001A	01/26/2012 11:28	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	120255711001	01/25/2012 19:13	Nelli S Markaryan	1
05708	SW SW846 ICP/ICP MS Digest	SW-846 3050B	1	120245708001	01/24/2012 12:28	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	120245711001	01/24/2012 14:40	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	2	120255711001	01/25/2012 12:50	James L Mertz	1
00111	Moisture	SM20 2540 G	1	12025820002B	01/25/2012 18:32	Scott W Freisher	1

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Analysis Report

Sample Description: HGR-IDW-55 Composite Soil
Dow Hanging Rock, OH

LLI Sample # SW 6526796
LLI Group # 1285784
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 13:30 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/30/2012 13:38

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

IDW55 SDG#: DHR14-02*

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	9	U	9	1.04
10949	Benzene	71-43-2	0.6	U	0.6	1.04
10949	Bromobenzene	108-86-1	1	U	1	1.04
10949	Bromochloromethane	74-97-5	1	U	1	1.04
10949	Bromodichloromethane	75-27-4	1	U	1	1.04
10949	Bromoform	75-25-2	1	U	1	1.04
10949	Bromomethane	74-83-9	3	U	3	1.04
10949	2-Butanone	78-93-3	5	U	5	1.04
10949	n-Butylbenzene	104-51-8	1	U	1	1.04
10949	sec-Butylbenzene	135-98-8	1	U	1	1.04
10949	tert-Butylbenzene	98-06-6	1	U	1	1.04
10949	Carbon Disulfide	75-15-0	1	U	1	1.04
10949	Carbon Tetrachloride	56-23-5	1	U	1	1.04
10949	Chlorobenzene	108-90-7	1	U	1	1.04
10949	Chloroethane	75-00-3	3	U	3	1.04
10949	Chloroform	67-66-3	1	U	1	1.04
10949	Chloromethane	74-87-3	3	U	3	1.04
10949	2-Chlorotoluene	95-49-8	1	U	1	1.04
10949	4-Chlorotoluene	106-43-4	1	U	1	1.04
10949	Cyclohexane	110-82-7	1	U	1	1.04
10949	1,2-Dibromo-3-chloropropane	96-12-8	3	U	3	1.04
10949	Dibromochloromethane	124-48-1	1	U	1	1.04
10949	1,2-Dibromoethane	106-93-4	1	U	1	1.04
10949	Dibromomethane	74-95-3	1	U	1	1.04
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	1.04
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	1.04
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	1.04
10949	Dichlorodifluoromethane	75-71-8	3	U	3	1.04
10949	1,1-Dichloroethane	75-34-3	1	U	1	1.04
10949	1,2-Dichloroethane	107-06-2	1	U	1	1.04
10949	1,1-Dichloroethene	75-35-4	1	U	1	1.04
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	1.04
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	1.04
10949	1,2-Dichloropropane	78-87-5	1	U	1	1.04
10949	1,3-Dichloropropane	142-28-9	1	U	1	1.04
10949	2,2-Dichloropropane	594-20-7	1	U	1	1.04
10949	1,1-Dichloropropene	563-58-6	1	U	1	1.04
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	1.04
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	1.04
10949	Ethylbenzene	100-41-4	1	U	1	1.04
10949	Freon 113	76-13-1	3	U	3	1.04
10949	Hexachlorobutadiene	87-68-3	3	U	3	1.04
10949	2-Hexanone	591-78-6	4	U	4	1.04
10949	Isopropylbenzene	98-82-8	1	U	1	1.04
10949	p-Isopropyltoluene	99-87-6	1	U	1	1.04
10949	Methyl Acetate	79-20-9	3	U	3	1.04
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.6	U	0.6	1.04
10949	4-Methyl-2-pentanone	108-10-1	4	U	4	1.04
10949	Methylcyclohexane	108-87-2	1	U	1	1.04
10949	Methylene Chloride	75-09-2	12		3	1.04
10949	Naphthalene	91-20-3	1	U	1	1.04

Sample Description: HGR-IDW-55 Composite Soil
Dow Hanging Rock, OH

LLI Sample # SW 6526796
LLI Group # 1285784
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 13:30 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/30/2012 13:38

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

IDW55 SDG#: DHR14-02*

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	1.04
10949	Styrene	100-42-5	1	U	1	1.04
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	1.04
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	1.04
10949	Tetrachloroethene	127-18-4	1	U	1	1.04
10949	Toluene	108-88-3	1	U	1	1.04
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	1.04
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	1.04
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	1.04
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	1.04
10949	Trichloroethene	79-01-6	1	U	1	1.04
10949	Trichlorofluoromethane	75-69-4	3	U	3	1.04
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	1.04
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	1.04
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	1.04
10949	Vinyl Acetate	108-05-4	3	U	3	1.04
10949	Vinyl Chloride	75-01-4	1	U	1	1.04
10949	m+p-Xylene	179601-23-1	1	U	1	1.04
10949	o-Xylene	95-47-6	1	U	1	1.04
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	21		4	1
10727	Acenaphthylene	208-96-8	98		4	1
10727	Anthracene	120-12-7	9	J	4	1
10727	Benzo(a)anthracene	56-55-3	9	J	4	1
10727	Benzo(a)pyrene	50-32-8	8	J	4	1
10727	Benzo(b)fluoranthene	205-99-2	11	J	4	1
10727	Benzo(g,h,i)perylene	191-24-2	16	J	4	1
10727	Benzo(k)fluoranthene	207-08-9	6	J	4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	20	U	20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	81	U	81	1
10727	Di-n-butylphthalate	84-74-2	81	U	81	1
10727	Carbazole	86-74-8	20	U	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	8	U	8	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	18	J	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	20	U	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1
10727	Diethylphthalate	84-66-2	81	U	81	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	81	U	81	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1

Sample Description: HGR-IDW-55 Composite Soil
Dow Hanging Rock, OH

LLI Sample # SW 6526796
LLI Group # 1285784
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 13:30 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/30/2012 13:38

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

IDW55 SDG#: DHR14-02*

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	360	U	360	1
10727	2,4-Dinitrotoluene	121-14-2	81	U	81	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	81	U	81	1
10727	Fluoranthene	206-44-0	11	J	4	1
10727	Fluorene	86-73-7	67		4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	40	U	40	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	34		4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	81	U	81	1
10727	4-Nitroaniline	100-01-6	81	U	81	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	81	U	81	1
10727	Pentachlorophenol	87-86-5	40	U	40	1
10727	Phenanthrene	85-01-8	29		4	1
10727	Phenol	108-95-2	20	U	20	1
10727	Pyrene	129-00-0	16	J	4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	55.2		0.0209	1
06949	Cadmium	7440-43-9	0.145	J	0.0233	1
06951	Chromium	7440-47-3	7.32		0.163	1
06955	Lead	7439-92-1	6.56		0.256	1
06936	Selenium	7782-49-2	2.05	J	0.791	1
06966	Silver	7440-22-4	0.0965	U	0.0965	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	7.08		0.0930	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0085	U	0.0085	1

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Analysis Report

Sample Description: HGR-IDW-55 Composite Soil
Dow Hanging Rock, OH

LLI Sample # SW 6526796
LLI Group # 1285784
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 13:30 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/30/2012 13:38

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

IDW55 SDG#: DHR14-02*

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	17.3	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	B120241AA	01/24/2012 17:00	Chelsea B Eastep	1.04
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	1	201201926615	01/19/2012 21:49	Scott W Freisher	n.a.
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	2	201201926615	01/19/2012 21:49	Scott W Freisher	n.a.
06646	GC/MS HL Bulk Sample Prep	SW-846 5035A Modified	1	201201926615	01/19/2012 21:43	Scott W Freisher	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	12020SLA026	01/23/2012 02:56	Jennifer R Riggs	1
10809	BNA Soil Microwave	SW-846 3546	1	12020SLA026	01/20/2012 14:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	120245708001	01/25/2012 00:38	John W Yanzuk II	1
06949	Cadmium	SW-846 6010B	1	120245708001	01/25/2012 00:38	John W Yanzuk II	1
06951	Chromium	SW-846 6010B	1	120245708001	01/25/2012 00:38	John W Yanzuk II	1
06955	Lead	SW-846 6010B	1	120245708001	01/25/2012 00:38	John W Yanzuk II	1
06936	Selenium	SW-846 6010B	1	120245708001	01/25/2012 00:38	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	120245708001	01/25/2012 00:38	John W Yanzuk II	1
06125	Arsenic	SW-846 6020	1	120245708001A	01/26/2012 11:30	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	120255711001	01/25/2012 19:14	Nelli S Markaryan	1
05708	SW SW846 ICP/ICP MS Digest	SW-846 3050B	1	120245708001	01/24/2012 12:28	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	120245711001	01/24/2012 14:40	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	2	120255711001	01/25/2012 12:50	James L Mertz	1
00111	Moisture	SM20 2540 G	1	12025820002B	01/25/2012 18:32	Scott W Freisher	1

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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1285784
Reported: 01/30/12 at 01:38 PM

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: B120241AA	Sample number(s): 6526795-6526796								
Acetone	7	U	7.	ug/kg	124		32-209		
Benzene	0.5	U	0.5	ug/kg	95		80-120		
Bromobenzene	1	U	1.	ug/kg	88		79-120		
Bromochloromethane	1	U	1.	ug/kg	100		79-124		
Bromodichloromethane	1	U	1.	ug/kg	101		78-120		
Bromoform	1	U	1.	ug/kg	96		70-120		
Bromomethane	2	U	2.	ug/kg	86		32-162		
2-Butanone	4	U	4.	ug/kg	107		46-153		
n-Butylbenzene	1	U	1.	ug/kg	88		72-120		
sec-Butylbenzene	1	U	1.	ug/kg	88		75-120		
tert-Butylbenzene	1	U	1.	ug/kg	85		75-120		
Carbon Disulfide	1	U	1.	ug/kg	87		67-122		
Carbon Tetrachloride	1	U	1.	ug/kg	108		69-122		
Chlorobenzene	1	U	1.	ug/kg	92		80-120		
Chloroethane	2	U	2.	ug/kg	79		37-154		
Chloroform	1	U	1.	ug/kg	104		80-120		
Chloromethane	2	U	2.	ug/kg	87		54-132		
2-Chlorotoluene	1	U	1.	ug/kg	85		78-120		
4-Chlorotoluene	1	U	1.	ug/kg	85		79-120		
Cyclohexane	1	U	1.	ug/kg	98		62-121		
1,2-Dibromo-3-chloropropane	2	U	2.	ug/kg	92		58-120		
Dibromochloromethane	1	U	1.	ug/kg	98		77-120		
1,2-Dibromoethane	1	U	1.	ug/kg	95		80-120		
Dibromomethane	1	U	1.	ug/kg	102		80-120		
1,2-Dichlorobenzene	1	U	1.	ug/kg	89		79-120		
1,3-Dichlorobenzene	1	U	1.	ug/kg	88		78-120		
1,4-Dichlorobenzene	1	U	1.	ug/kg	87		79-120		
Dichlorodifluoromethane	2	U	2.	ug/kg	96		20-120		
1,1-Dichloroethane	1	U	1.	ug/kg	103		80-120		
1,2-Dichloroethane	1	U	1.	ug/kg	118		71-129		
1,1-Dichloroethene	1	U	1.	ug/kg	92		73-123		
cis-1,2-Dichloroethene	1	U	1.	ug/kg	95		80-120		
trans-1,2-Dichloroethene	1	U	1.	ug/kg	93		79-120		
1,2-Dichloropropane	1	U	1.	ug/kg	99		80-120		
1,3-Dichloropropane	1	U	1.	ug/kg	97		80-120		
2,2-Dichloropropane	1	U	1.	ug/kg	101		72-123		
1,1-Dichloropropene	1	U	1.	ug/kg	100		77-120		
cis-1,3-Dichloropropene	1	U	1.	ug/kg	96		80-120		
trans-1,3-Dichloropropene	1	U	1.	ug/kg	96		77-120		
Ethylbenzene	1	U	1.	ug/kg	91		80-120		
Freon 113	2	U	2.	ug/kg	99		61-126		
Hexachlorobutadiene	2	U	2.	ug/kg	102		57-120		
2-Hexanone	3	U	3.	ug/kg	93		45-155		
Isopropylbenzene	1	U	1.	ug/kg	93		76-120		
p-Isopropyltoluene	1	U	1.	ug/kg	89		75-120		

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1285784
Reported: 01/30/12 at 01:38 PM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Methyl Acetate	2	U	2.	ug/kg	129		61-152		
Methyl Tertiary Butyl Ether	0.5	U	0.5	ug/kg	101		74-121		
4-Methyl-2-pentanone	3	U	3.	ug/kg	108		61-134		
Methylcyclohexane	1	U	1.	ug/kg	97		57-138		
Methylene Chloride	2	U	2.	ug/kg	93		76-124		
Naphthalene	1	U	1.	ug/kg	79		59-123		
n-Propylbenzene	1	U	1.	ug/kg	87		77-120		
Styrene	1	U	1.	ug/kg	86		76-120		
1,1,1,2-Tetrachloroethane	1	U	1.	ug/kg	95		80-120		
1,1,2,2-Tetrachloroethane	1	U	1.	ug/kg	89		71-123		
Tetrachloroethene	1	U	1.	ug/kg	95		77-120		
Toluene	1	U	1.	ug/kg	89		80-120		
1,2,3-Trichlorobenzene	1	U	1.	ug/kg	87		64-120		
1,2,4-Trichlorobenzene	1	U	1.	ug/kg	85		68-120		
1,1,1-Trichloroethane	1	U	1.	ug/kg	101		71-125		
1,1,2-Trichloroethane	1	U	1.	ug/kg	95		80-120		
Trichloroethene	1	U	1.	ug/kg	95		80-120		
Trichlorofluoromethane	2	U	2.	ug/kg	106		58-133		
1,2,3-Trichloropropane	1	U	1.	ug/kg	96		71-123		
1,2,4-Trimethylbenzene	1	U	1.	ug/kg	86		79-120		
1,3,5-Trimethylbenzene	1	U	1.	ug/kg	87		78-120		
Vinyl Acetate	2	U	2.	ug/kg	137	140*	56-137	2	30
Vinyl Chloride	1	U	1.	ug/kg	88		53-120		
m+p-Xylene	1	U	1.	ug/kg	92		80-120		
o-Xylene	1	U	1.	ug/kg	90		80-120		
Batch number: 12020SLA026	Sample number(s): 6526795-6526796								
Acenaphthene	3	U	3.	ug/kg	98		83-111		
Acenaphthylene	3	U	3.	ug/kg	103		68-120		
Anthracene	3	U	3.	ug/kg	99		83-111		
Benzo(a)anthracene	3	U	3.	ug/kg	89		82-111		
Benzo(a)pyrene	3	U	3.	ug/kg	95		63-138		
Benzo(b)fluoranthene	3	U	3.	ug/kg	95		61-133		
Benzo(g,h,i)perylene	3	U	3.	ug/kg	103		63-130		
Benzo(k)fluoranthene	3	U	3.	ug/kg	91		71-135		
Benzyl alcohol	170	U	170.	ug/kg	72		68-111		
1,1'-Biphenyl	17	U	17.	ug/kg	94		82-106		
4-Bromophenyl-phenylether	17	U	17.	ug/kg	104		79-117		
Butylbenzylphthalate	67	U	67.	ug/kg	93		77-125		
Di-n-butylphthalate	67	U	67.	ug/kg	98		79-112		
Carbazole	17	U	17.	ug/kg	93		83-111		
4-Chloro-3-methylphenol	17	U	17.	ug/kg	88		74-119		
4-Chloroaniline	17	U	17.	ug/kg	27		10-97		
bis(2-Chloroethoxy)methane	17	U	17.	ug/kg	90		82-113		
bis(2-Chloroethyl)ether	17	U	17.	ug/kg	89		77-115		
2-Chloronaphthalene	7	U	7.	ug/kg	120*		50-117		
2-Chlorophenol	17	U	17.	ug/kg	92		83-119		
4-Chlorophenyl-phenylether	17	U	17.	ug/kg	98		79-110		
Chrysene	3	U	3.	ug/kg	88		81-111		
Dibenz(a,h)anthracene	3	U	3.	ug/kg	101		67-129		
Dibenzofuran	17	U	17.	ug/kg	95		85-110		
3,3'-Dichlorobenzidine	100	U	100.	ug/kg	45		17-116		
2,4-Dichlorophenol	17	U	17.	ug/kg	95		87-117		
Diethylphthalate	67	U	67.	ug/kg	96		82-113		
2,4-Dimethylphenol	17	U	17.	ug/kg	94		83-120		
Dimethylphthalate	67	U	67.	ug/kg	96		85-111		
4,6-Dinitro-2-methylphenol	170	U	170.	ug/kg	89		60-113		
2,4-Dinitrophenol	300	U	300.	ug/kg	87		39-126		

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1285784
Reported: 01/30/12 at 01:38 PM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
2,4-Dinitrotoluene	67	U	67.	ug/kg	96		80-116		
2,6-Dinitrotoluene	17	U	17.	ug/kg	100		79-115		
1,4-Dioxane	100	U	100.	ug/kg	57		38-75		
bis(2-Ethylhexyl)phthalate	67	U	67.	ug/kg	88		75-124		
Fluoranthene	3	U	3.	ug/kg	97		80-113		
Fluorene	3	U	3.	ug/kg	97		81-117		
Hexachlorobenzene	3	U	3.	ug/kg	106		79-115		
Hexachlorocyclopentadiene	170	U	170.	ug/kg	104		64-127		
Hexachloroethane	33	U	33.	ug/kg	85		76-109		
Indeno(1,2,3-cd)pyrene	3	U	3.	ug/kg	99		64-128		
Isophorone	17	U	17.	ug/kg	87		72-107		
2-Methylnaphthalene	3	U	3.	ug/kg	91		79-110		
2-Methylphenol	17	U	17.	ug/kg	93		80-119		
4-Methylphenol	17	U	17.	ug/kg	82		74-116		
2-Nitroaniline	17	U	17.	ug/kg	96		83-118		
3-Nitroaniline	67	U	67.	ug/kg	78		66-114		
4-Nitroaniline	67	U	67.	ug/kg	66		52-92		
Nitrobenzene	17	U	17.	ug/kg	90		78-122		
2-Nitrophenol	17	U	17.	ug/kg	94		81-114		
4-Nitrophenol	170	U	170.	ug/kg	77		57-131		
N-Nitroso-di-n-propylamine	17	U	17.	ug/kg	78		70-113		
N-Nitrosodiphenylamine	17	U	17.	ug/kg	98		86-112		
Di-n-octylphthalate	67	U	67.	ug/kg	94		65-141		
Pentachlorophenol	33	U	33.	ug/kg	93		50-133		
Phenanthrene	3	U	3.	ug/kg	93		83-109		
Phenol	17	U	17.	ug/kg	85		74-115		
Pyrene	3	U	3.	ug/kg	91		80-121		
2,4,5-Trichlorophenol	17	U	17.	ug/kg	98		84-109		
2,4,6-Trichlorophenol	17	U	17.	ug/kg	101		88-114		
Batch number: 120245708001	Sample number(s): 6526795-6526796								
Barium	0.0176	U	0.0176	mg/kg	101		80-120		
Cadmium	0.0196	U	0.0196	mg/kg	100		80-120		
Chromium	0.137	U	0.137	mg/kg	100		80-120		
Lead	0.216	U	0.216	mg/kg	102		80-120		
Selenium	0.667	U	0.667	mg/kg	100		80-120		
Silver	0.0814	U	0.0814	mg/kg	99		80-120		
Batch number: 120245708001A	Sample number(s): 6526795-6526796								
Arsenic	0.0784	U	0.0784	mg/kg	109		80-120		
Batch number: 120255711001	Sample number(s): 6526795-6526796								
Mercury	0.0067	U	0.0067	mg/kg	99		80-120		
Batch number: 12025820002B	Sample number(s): 6526795-6526796								
Moisture					100		99-101		

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1285784
Reported: 01/30/12 at 01:38 PM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: B120241AA	Sample number(s): 6526795-6526796 UNSPK: P526784								
Acetone	119	128	31-195	7	30				
Benzene	94	104	55-143	11	30				
Bromobenzene	70	115	43-139	48*	30				
Bromochloromethane	96	105	60-137	10	30				
Bromodichloromethane	93	101	53-136	8	30				
Bromoform	74	80	38-124	8	30				
Bromomethane	87	95	42-168	9	30				
2-Butanone	104	102	37-163	2	30				
n-Butylbenzene	63	112	30-146	57*	30				
sec-Butylbenzene	69	127	33-157	59*	30				
tert-Butylbenzene	65	117	41-152	57*	30				
Carbon Disulfide	85	99	48-146	16	30				
Carbon Tetrachloride	106	119	45-153	12	30				
Chlorobenzene	78	100	49-135	25	30				
Chloroethane	82	89	39-152	9	30				
Chloroform	101	112	61-142	11	30				
Chloromethane	95	106	51-163	11	30				
2-Chlorotoluene	67	112	42-146	51*	30				
4-Chlorotoluene	65	108	39-145	50*	30				
Cyclohexane	90	112	57-151	23	30				
1,2-Dibromo-3-chloropropane	69	97	30-139	34*	30				
Dibromochloromethane	83	94	51-128	13	30				
1,2-Dibromoethane	84	95	54-129	13	30				
Dibromomethane	91	101	57-130	11	30				
1,2-Dichlorobenzene	58	95	36-133	49*	30				
1,3-Dichlorobenzene	60	100	34-134	50*	30				
1,4-Dichlorobenzene	59	97	35-136	49*	30				
Dichlorodifluoromethane	106	116	26-151	10	30				
1,1-Dichloroethane	103	113	63-142	10	30				
1,2-Dichloroethane	113	121	68-131	7	30				
1,1-Dichloroethene	94	104	61-149	11	30				
cis-1,2-Dichloroethene	93	104	60-136	12	30				
trans-1,2-Dichloroethene	92	101	59-142	10	30				
1,2-Dichloropropane	94	104	62-135	10	30				
1,3-Dichloropropane	90	103	58-129	14	30				
2,2-Dichloropropane	105	115	53-147	9	30				
1,1-Dichloropropene	96	111	54-145	15	30				
cis-1,3-Dichloropropene	86	94	51-131	10	30				
trans-1,3-Dichloropropene	83	97	49-129	15	30				
Ethylbenzene	78	104	44-141	29	30				
Freon 113	98	113	56-156	15	30				
Hexachlorobutadiene	61	118	10-155	65*	30				
2-Hexanone	86	93	32-160	8	30				
Isopropylbenzene	69	102	38-144	35*	30				
p-Isopropyltoluene	65	117	29-152	58*	30				
Methyl Acetate	104	105	48-161	1	30				
Methyl Tertiary Butyl Ether	97	104	55-129	8	30				
4-Methyl-2-pentanone	96	98	46-139	2	30				
Methylcyclohexane	84	96	39-168	14	30				
Methylene Chloride	90	110	61-141	20	30				
Naphthalene	37	55	10-138	40*	30				
n-Propylbenzene	72	125	39-157	54*	30				

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1285784
Reported: 01/30/12 at 01:38 PM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Styrene	68	90	35-134	29	30				
1,1,1,2-Tetrachloroethane	82	104	52-130	24	30				
1,1,2,2-Tetrachloroethane	78	110	40-152	35*	30				
Tetrachloroethene	82	108	42-149	27	30				
Toluene	85	106	50-146	21	30				
1,2,3-Trichlorobenzene	37	58	10-140	45*	30				
1,2,4-Trichlorobenzene	40	64	10-136	47*	30				
1,1,1-Trichloroethane	100	112	64-142	12	30				
1,1,2-Trichloroethane	87	102	54-139	16	30				
Trichloroethene	89	103	53-144	15	30				
Trichlorofluoromethane	152	121	47-163	23	30				
1,2,3-Trichloropropane	85	121	45-154	35*	30				
1,2,4-Trimethylbenzene	65	111	37-149	53*	30				
1,3,5-Trimethylbenzene	68	116	38-150	53*	30				
Vinyl Chloride	96	105	50-154	9	30				
m+p-Xylene	76	101	44-137	28	30				
o-Xylene	72	96	42-137	28	30				
Batch number: 12020SLA026	Sample number(s): 6526795-6526796 UNSPK: P526784								
Acenaphthene	96	99	41-135	4	30				
Acenaphthylene	95	83	47-137	13	30				
Anthracene	95	80	40-147	15	30				
Benzo(a)anthracene	86	73	32-150	12	30				
Benzo(a)pyrene	92	74	57-129	16	30				
Benzo(b)fluoranthene	94	71	53-131	19	30				
Benzo(g,h,i)perylene	90	68	60-123	22	30				
Benzo(k)fluoranthene	93	75	61-131	17	30				
Benzyl alcohol	0*	0*	63-128	0	30				
1,1'-Biphenyl	106	64	51-127	29	30				
4-Bromophenyl-phenylether	93	87	46-131	6	30				
Butylbenzylphthalate	87	77	26-161	13	30				
Di-n-butylphthalate	99	83	32-139	18	30				
Carbazole	92	85	36-148	8	30				
4-Chloro-3-methylphenol	97	81	33-144	18	30				
4-Chloroaniline	30	54	11-114	56*	30				
bis(2-Chloroethoxy)methane	91	77	44-132	16	30				
bis(2-Chloroethyl)ether	105	82	45-139	24	30				
2-Chloronaphthalene	95	78	22-131	20	30				
2-Chlorophenol	95	76	29-151	23	30				
4-Chlorophenyl-phenylether	88	83	42-130	6	30				
Chrysene	79	68*	76-114	10	30				
Dibenz(a,h)anthracene	94	73	37-151	24	30				
Dibenzofuran	96	83	38-148	14	30				
3,3'-Dichlorobenzidine	0*	0*	10-143	0	30				
2,4-Dichlorophenol	100	81	35-142	22	30				
Diethylphthalate	90	79	32-137	13	30				
2,4-Dimethylphenol	94	76	27-143	21	30				
Dimethylphthalate	94	79	26-141	17	30				
4,6-Dinitro-2-methylphenol	100	113	10-148	12	30				
2,4-Dinitrophenol	0*	0*	20-143	0	30				
2,4-Dinitrotoluene	84	75	27-147	12	30				
2,6-Dinitrotoluene	85	80	44-140	6	30				
1,4-Dioxane	69	0*	31-77	200*	30				

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1285784
Reported: 01/30/12 at 01:38 PM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
bis(2-Ethylhexyl)phthalate	99	90	38-151	10	30				
Fluoranthene	107	78	48-122	16	30				
Fluorene	102	77	35-140	23	30				
Hexachlorobenzene	93	85	53-137	9	30				
Hexachlorocyclopentadiene	0*	0*	10-153	0	30				
Hexachloroethane	29*	55*	71-104	62*	30				
Indeno(1,2,3-cd)pyrene	89	69	61-123	19	30				
Isophorone	86	76	54-122	12	30				
2-Methylnaphthalene	94	79	23-141	16	30				
2-Methylphenol	93	82	30-145	13	30				
4-Methylphenol	83	74	36-149	12	30				
2-Nitroaniline	144	103	46-146	33*	30				
3-Nitroaniline	61	70	34-134	13	30				
4-Nitroaniline	95	117	26-124	21	30				
Nitrobenzene	95	81	37-139	16	30				
2-Nitrophenol	30	62	25-151	68*	30				
4-Nitrophenol	0*	0*	15-149	0	30				
N-Nitroso-di-n-propylamine	86	69	46-128	23	30				
N-Nitrosodiphenylamine	86	82	33-148	5	30				
Di-n-octylphthalate	94	81	43-149	14	30				
Pentachlorophenol	38	56	23-145	38*	30				
Phenanthrene	98	78	34-147	14	30				
Phenol	101	83	39-151	20	30				
Pyrene	95	74*	76-124	14	30				
2,4,5-Trichlorophenol	86	77	25-143	12	30				
2,4,6-Trichlorophenol	82	82	41-142	0	30				
Batch number: 120245708001	Sample number(s): 6526795-6526796 UNSPK: P526784 BKG: P526784								
Barium	102	105	75-125	4	20	69.0	75.7	9	20
Cadmium	95	133*	75-125	32*	20	0.497	0.519	4 (1)	20
Chromium	96	127*	75-125	12	20	32.6	37.5	14	20
Lead	41*	101	75-125	27*	20	23.2	16.3	35*	20
Selenium	100	111	75-125	12	20	0.673 U	1.45 J	200* (1)	20
Silver	98	98	75-125	3	20	0.0822 U	0.328 J	200* (1)	20
Batch number: 120245708001A	Sample number(s): 6526795-6526796 UNSPK: P526784 BKG: P526784								
Arsenic	147*	141*	75-125	1	20	4.53	4.86	7	20
Batch number: 120255711001	Sample number(s): 6526795-6526796 UNSPK: P526784 BKG: P526784								
Mercury	101	100	80-120	4	20	0.0155 J	0.0120 J	25* (1)	20
Batch number: 12025820002B	Sample number(s): 6526795-6526796 BKG: P526784								
Moisture						29.9	34.2	13	15

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 8260 Ext. Soil Master

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1285784
Reported: 01/30/12 at 01:38 PM

Surrogate Quality Control

Batch number: B120241AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
6526795	106	104	99	97
6526796	106	101	101	95
Blank	105	103	100	97
LCS	106	102	102	103
MS	107	107	102	101
MSD	104	100	107	94
Limits:	71-114	70-109	70-123	70-111

Analysis Name: TCL 8270 (microwave)
Batch number: 12020SLA026

	Phenol-d6	2-Fluorophenol	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
6526795	81	85	80	72	85	90
6526795 DL	80	90	83	78	95	92
6526796	77	90	93	82	90	97
Blank	87	100	101	88	98	107
LCS	85	93	98	82	95	98
MS	86	97	73	82	89	93
MSD	74	77	79	71	76	79
Limits:	42-130	39-136	28-139	45-123	56-121	43-124

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Analysis Request/ Environmental Services Chain of Custody

Lancaster Laboratories

For Lancaster Laboratories use only

Acct. # 11372 Group# 1285784 Sample # 6526795-96 **COC #** 273811

Please print. Instructions on reverse side correspond with circled numbers.

(1) Client: CH2M HILL Acct. #:

Project Name/#: Dow Hanging Rock / 420671 PWSID #:

Project Manager: Mark Holland / CH2M HILL P.O.#:

Sampler: Jeff Johnson / CH2M HILL Quote #:

Name of state where samples were collected: OHIO

For Lab Use Only
FSC:
SCR#: 113924

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

(6) Temperature of samples upon receipt (if requested)

(2) Sample Identification	Date Collected	Time Collected	(3) Grab	Composite	Matrix (4) Soil	Water (Potable / NPDES)	Other	Total # of Containers	(5) Analyses Requested / Preservation Codes: VOC	SVOC	RCRA 8 Metals							Remarks
HGR-IDW-S4	1/18/12	1315		X	X			2										
HGR-IDW-S5	1/18/12	1330		X	X			2										

(7) **Turnaround Time Requested** (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed:
Rush results requested by (please circle): Phone Fax E-mail
Phone #: Fax #:
E-mail address:

(8) **Data Package Options** (please circle if required)
Type I (validation/NJ Reg)
Type II (Tier II)
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)
TX TRRP-13
MA MCP CT RCP
SDG Complete? Yes No
Site-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate volume.)
Internal COC Required? Yes / No

Relinquished by:	Date	Time	Received by:	Date	Time
	1-16-12	0920		1/17/12	0900
	1-18-12	1700			

(9)

Lancaster Laboratories, Inc., 2425 New Holland Pike, Lancaster, PA 17601 (717) 656-2300 Fax: (717) 656-6766
Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client.

Issued by: Dept. 6042 Management
2102.05

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

J estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike sample not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*****	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as “analyze immediately” are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL LANCASTER LABORATORIES BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF LANCASTER LABORATORIES AND (B) WHETHER LANCASTER LABORATORIES HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Lancaster Laboratories which includes any conditions that vary from the Standard Terms and Conditions, and Lancaster hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Analysis Report

ANALYTICAL RESULTS

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425

Prepared for:

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

January 31, 2012

Project: Dow Hanging Rock, OH

Submittal Date: 01/19/2012
Group Number: 1285786
SDG: DHR15
PO Number: 420671-04
Release Number: DHR15
State of Sample Origin: OH

Client Sample Description	Lancaster Labs (LLI) #
HGR-011812-TB02 Water	6526799
HGR-011812-FD01 Grab Water	6526800
WW2-0000-011812 Grab Water	6526801
WW5-0000-011812 Grab Water	6526802
WW5-0000-011812 MS Grab Water	6526803
WW5-0000-011812 MSD Grab Water	6526804
SG-0000-011812 Grab Water	6526805
HGR-IDW-W2 Composite Water	6526806
HGR-IDW-W3 Composite Water	6526807

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Shane Lowe
ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Rachel Grand
1 COPY TO	Data Package Group	

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Questions? Contact your Client Services Representative
Wendy A Kozma at (717) 656-2300 Ext. 1522

Respectfully Submitted,

Mark A. Ratcliff
Senior Specialist

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Analysis Report

Sample Description: HGR-011812-TB02 Water
Dow Hanging Rock, OH

LLI Sample # WW 6526799
LLI Group # 1285786
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 17:20

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 12:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

TB02- SDG#: DHR15-01TB

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**EPA 624**		ug/l		ug/l	
10371	Acrolein	107-02-8	10	U	10	1
10371	Acrylonitrile	107-13-1	10	U	10	1
10371	Benzene	71-43-2	0.9	U	0.9	1
10371	Bromodichloromethane	75-27-4	0.7	U	0.7	1
10371	Bromoform	75-25-2	0.8	U	0.8	1
10371	Bromomethane	74-83-9	2	U	2	1
10371	Carbon Tetrachloride	56-23-5	1	U	1	1
10371	Chlorobenzene	108-90-7	0.8	U	0.8	1
10371	Chloroethane	75-00-3	2	U	2	1
10371	2-Chloroethyl Vinyl Ether	110-75-8	2	U	2	1
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.					
10371	Chloroform	67-66-3	1	U	1	1
10371	Chloromethane	74-87-3	2	U	2	1
10371	Dibromochloromethane	124-48-1	1	U	1	1
10371	1,2-Dichlorobenzene	95-50-1	1	U	1	1
10371	1,3-Dichlorobenzene	541-73-1	1	U	1	1
10371	1,4-Dichlorobenzene	106-46-7	1	U	1	1
10371	1,1-Dichloroethane	75-34-3	1	U	1	1
10371	1,2-Dichloroethane	107-06-2	1	U	1	1
10371	1,1-Dichloroethene	75-35-4	0.9	U	0.9	1
10371	cis-1,2-Dichloroethene	156-59-2	1	U	1	1
10371	trans-1,2-Dichloroethene	156-60-5	1	U	1	1
10371	1,2-Dichloropropane	78-87-5	1	U	1	1
10371	cis-1,3-Dichloropropene	10061-01-5	1	U	1	1
10371	trans-1,3-Dichloropropene	10061-02-6	0.6	U	0.6	1
10371	Ethylbenzene	100-41-4	0.8	U	0.8	1
10371	Methylene Chloride	75-09-2	2	U	2	1
10371	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	1
10371	Tetrachloroethene	127-18-4	1	U	1	1
10371	Toluene	108-88-3	0.8	U	0.8	1
10371	1,1,1-Trichloroethane	71-55-6	1	U	1	1
10371	1,1,2-Trichloroethane	79-00-5	1	U	1	1
10371	Trichloroethene	79-01-6	1	U	1	1
10371	Trichlorofluoromethane	75-69-4	2	U	2	1
10371	Vinyl Chloride	75-01-4	2	U	2	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10371	EPA 624 water	EPA 624	1	M120241AA	01/24/2012 14:19	Linda C Pape	1

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Analysis Report

Sample Description: HGR-011812-FD01 Grab Water
Dow Hanging Rock, OH

LLI Sample # WW 6526800
LLI Group # 1285786
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 by BW

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 12:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

FD01- SDG#: DHR15-02FD

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**EPA 624**		ug/l		ug/l	
10371	Acrolein	107-02-8	10	U	10	1
10371	Acrylonitrile	107-13-1	10	U	10	1
10371	Benzene	71-43-2	0.9	U	0.9	1
10371	Bromodichloromethane	75-27-4	0.7	U	0.7	1
10371	Bromoform	75-25-2	0.8	U	0.8	1
10371	Bromomethane	74-83-9	2	U	2	1
10371	Carbon Tetrachloride	56-23-5	1	U	1	1
10371	Chlorobenzene	108-90-7	0.8	U	0.8	1
10371	Chloroethane	75-00-3	2	U	2	1
10371	2-Chloroethyl Vinyl Ether	110-75-8	2	U	2	1
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.					
10371	Chloroform	67-66-3	1	U	1	1
10371	Chloromethane	74-87-3	2	U	2	1
10371	Dibromochloromethane	124-48-1	1	U	1	1
10371	1,2-Dichlorobenzene	95-50-1	1	U	1	1
10371	1,3-Dichlorobenzene	541-73-1	1	U	1	1
10371	1,4-Dichlorobenzene	106-46-7	1	U	1	1
10371	1,1-Dichloroethane	75-34-3	1	U	1	1
10371	1,2-Dichloroethane	107-06-2	1	U	1	1
10371	1,1-Dichloroethene	75-35-4	0.9	U	0.9	1
10371	cis-1,2-Dichloroethene	156-59-2	1	U	1	1
10371	trans-1,2-Dichloroethene	156-60-5	1	U	1	1
10371	1,2-Dichloropropane	78-87-5	1	U	1	1
10371	cis-1,3-Dichloropropene	10061-01-5	1	U	1	1
10371	trans-1,3-Dichloropropene	10061-02-6	0.6	U	0.6	1
10371	Ethylbenzene	100-41-4	0.8	U	0.8	1
10371	Methylene Chloride	75-09-2	2	U	2	1
10371	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	1
10371	Tetrachloroethene	127-18-4	1	U	1	1
10371	Toluene	108-88-3	0.8	U	0.8	1
10371	1,1,1-Trichloroethane	71-55-6	1	U	1	1
10371	1,1,2-Trichloroethane	79-00-5	1	U	1	1
10371	Trichloroethene	79-01-6	1	U	1	1
10371	Trichlorofluoromethane	75-69-4	2	U	2	1
10371	Vinyl Chloride	75-01-4	2	U	2	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10371	EPA 624 water	EPA 624	1	M120241AA	01/24/2012 16:53	Linda C Pape	1

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Analysis Report

Sample Description: WW2-0000-011812 Grab Water
Dow Hanging Rock, OH

LLI Sample # WW 6526801
LLI Group # 1285786
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 16:00 by BW

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 12:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

WW2-- SDG#: DHR15-03

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**EPA 624**		ug/l		ug/l	
10371	Acrolein	107-02-8	10	U	10	1
10371	Acrylonitrile	107-13-1	10	U	10	1
10371	Benzene	71-43-2	0.9	U	0.9	1
10371	Bromodichloromethane	75-27-4	0.7	U	0.7	1
10371	Bromoform	75-25-2	0.8	U	0.8	1
10371	Bromomethane	74-83-9	2	U	2	1
10371	Carbon Tetrachloride	56-23-5	1	U	1	1
10371	Chlorobenzene	108-90-7	0.8	U	0.8	1
10371	Chloroethane	75-00-3	2	U	2	1
10371	2-Chloroethyl Vinyl Ether	110-75-8	2	U	2	1
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.					
10371	Chloroform	67-66-3	1	U	1	1
10371	Chloromethane	74-87-3	2	U	2	1
10371	Dibromochloromethane	124-48-1	1	U	1	1
10371	1,2-Dichlorobenzene	95-50-1	1	U	1	1
10371	1,3-Dichlorobenzene	541-73-1	1	U	1	1
10371	1,4-Dichlorobenzene	106-46-7	1	U	1	1
10371	1,1-Dichloroethane	75-34-3	1	U	1	1
10371	1,2-Dichloroethane	107-06-2	1	U	1	1
10371	1,1-Dichloroethene	75-35-4	0.9	U	0.9	1
10371	cis-1,2-Dichloroethene	156-59-2	1	U	1	1
10371	trans-1,2-Dichloroethene	156-60-5	1	U	1	1
10371	1,2-Dichloropropane	78-87-5	1	U	1	1
10371	cis-1,3-Dichloropropene	10061-01-5	1	U	1	1
10371	trans-1,3-Dichloropropene	10061-02-6	0.6	U	0.6	1
10371	Ethylbenzene	100-41-4	0.8	U	0.8	1
10371	Methylene Chloride	75-09-2	2	U	2	1
10371	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	1
10371	Tetrachloroethene	127-18-4	1	U	1	1
10371	Toluene	108-88-3	0.8	U	0.8	1
10371	1,1,1-Trichloroethane	71-55-6	1	U	1	1
10371	1,1,2-Trichloroethane	79-00-5	1	U	1	1
10371	Trichloroethene	79-01-6	1	U	1	1
10371	Trichlorofluoromethane	75-69-4	2	U	2	1
10371	Vinyl Chloride	75-01-4	2	U	2	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10371	EPA 624 water	EPA 624	1	M120241AA	01/24/2012 17:18	Linda C Pape	1

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Analysis Report

Sample Description: WW5-0000-011812 Grab Water
Dow Hanging Rock, OH

LLI Sample # WW 6526802
LLI Group # 1285786
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 13:10 by BW

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 12:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

WW5-- SDG#: DHR15-04BKG

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**EPA 624**		ug/l		ug/l	
10371	Acrolein	107-02-8	10	U	10	1
10371	Acrylonitrile	107-13-1	10	U	10	1
10371	Benzene	71-43-2	0.9	U	0.9	1
10371	Bromodichloromethane	75-27-4	0.7	U	0.7	1
10371	Bromoform	75-25-2	0.8	U	0.8	1
10371	Bromomethane	74-83-9	2	U	2	1
10371	Carbon Tetrachloride	56-23-5	1	U	1	1
10371	Chlorobenzene	108-90-7	0.8	U	0.8	1
10371	Chloroethane	75-00-3	2	U	2	1
10371	2-Chloroethyl Vinyl Ether	110-75-8	2	U	2	1
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.					
10371	Chloroform	67-66-3	1	U	1	1
10371	Chloromethane	74-87-3	2	U	2	1
10371	Dibromochloromethane	124-48-1	1	U	1	1
10371	1,2-Dichlorobenzene	95-50-1	1	U	1	1
10371	1,3-Dichlorobenzene	541-73-1	1	U	1	1
10371	1,4-Dichlorobenzene	106-46-7	1	U	1	1
10371	1,1-Dichloroethane	75-34-3	1	U	1	1
10371	1,2-Dichloroethane	107-06-2	1	U	1	1
10371	1,1-Dichloroethene	75-35-4	0.9	U	0.9	1
10371	cis-1,2-Dichloroethene	156-59-2	1	U	1	1
10371	trans-1,2-Dichloroethene	156-60-5	1	U	1	1
10371	1,2-Dichloropropane	78-87-5	1	U	1	1
10371	cis-1,3-Dichloropropene	10061-01-5	1	U	1	1
10371	trans-1,3-Dichloropropene	10061-02-6	0.6	U	0.6	1
10371	Ethylbenzene	100-41-4	0.8	U	0.8	1
10371	Methylene Chloride	75-09-2	2	U	2	1
10371	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	1
10371	Tetrachloroethene	127-18-4	1	U	1	1
10371	Toluene	108-88-3	0.8	U	0.8	1
10371	1,1,1-Trichloroethane	71-55-6	1	U	1	1
10371	1,1,2-Trichloroethane	79-00-5	1	U	1	1
10371	Trichloroethene	79-01-6	1	U	1	1
10371	Trichlorofluoromethane	75-69-4	2	U	2	1
10371	Vinyl Chloride	75-01-4	2	U	2	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10371	EPA 624 water	EPA 624	1	M120241AA	01/24/2012 17:43	Linda C Pape	1

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Analysis Report

Sample Description: WW5-0000-011812 MS Grab Water
Dow Hanging Rock, OH

LLI Sample # WW 6526803
LLI Group # 1285786
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 13:10 by BW

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 12:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

WW5-- SDG#: DHR15-04MS

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**EPA 624**		**ug/l**	**ug/l**	
10371	Acrolein	107-02-8	140	10	1
10371	Acrylonitrile	107-13-1	78	10	1
10371	Benzene	71-43-2	20	0.9	1
10371	Bromodichloromethane	75-27-4	21	0.7	1
10371	Bromoform	75-25-2	22	0.8	1
10371	Bromomethane	74-83-9	15	2	1
10371	Carbon Tetrachloride	56-23-5	19	1	1
10371	Chlorobenzene	108-90-7	20	0.8	1
10371	Chloroethane	75-00-3	16	2	1
10371	2-Chloroethyl Vinyl Ether	110-75-8	2 U	2	1
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.				
10371	Chloroform	67-66-3	17	1	1
10371	Chloromethane	74-87-3	11	2	1
10371	Dibromochloromethane	124-48-1	21	1	1
10371	1,2-Dichlorobenzene	95-50-1	22	1	1
10371	1,3-Dichlorobenzene	541-73-1	22	1	1
10371	1,4-Dichlorobenzene	106-46-7	22	1	1
10371	1,1-Dichloroethane	75-34-3	20	1	1
10371	1,2-Dichloroethane	107-06-2	22	1	1
10371	1,1-Dichloroethene	75-35-4	20	0.9	1
10371	cis-1,2-Dichloroethene	156-59-2	20	1	1
10371	trans-1,2-Dichloroethene	156-60-5	20	1	1
10371	1,2-Dichloropropane	78-87-5	19	1	1
10371	cis-1,3-Dichloropropene	10061-01-5	19	1	1
10371	trans-1,3-Dichloropropene	10061-02-6	20	0.6	1
10371	Ethylbenzene	100-41-4	21	0.8	1
10371	Methylene Chloride	75-09-2	19	2	1
10371	1,1,2,2-Tetrachloroethane	79-34-5	22	1	1
10371	Tetrachloroethene	127-18-4	23	1	1
10371	Toluene	108-88-3	21	0.8	1
10371	1,1,1-Trichloroethane	71-55-6	18	1	1
10371	1,1,2-Trichloroethane	79-00-5	20	1	1
10371	Trichloroethene	79-01-6	21	1	1
10371	Trichlorofluoromethane	75-69-4	20	2	1
10371	Vinyl Chloride	75-01-4	14	2	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10371	EPA 624 water	EPA 624	1	M120241AA	01/24/2012 18:09	Linda C Pape	1

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Analysis Report

Sample Description: WW5-0000-011812 MSD Grab Water
Dow Hanging Rock, OH

LLI Sample # WW 6526804
LLI Group # 1285786
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 13:10 by BW

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 12:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

WW5-- SDG#: DHR15-04MSD

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**EPA 624**		ug/l		ug/l	
10371	Acrolein	107-02-8	140		10	1
10371	Acrylonitrile	107-13-1	77		10	1
10371	Benzene	71-43-2	20		0.9	1
10371	Bromodichloromethane	75-27-4	21		0.7	1
10371	Bromoform	75-25-2	22		0.8	1
10371	Bromomethane	74-83-9	14		2	1
10371	Carbon Tetrachloride	56-23-5	19		1	1
10371	Chlorobenzene	108-90-7	21		0.8	1
10371	Chloroethane	75-00-3	15		2	1
10371	2-Chloroethyl Vinyl Ether	110-75-8	2	U	2	1
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.					
10371	Chloroform	67-66-3	17		1	1
10371	Chloromethane	74-87-3	11		2	1
10371	Dibromochloromethane	124-48-1	21		1	1
10371	1,2-Dichlorobenzene	95-50-1	22		1	1
10371	1,3-Dichlorobenzene	541-73-1	22		1	1
10371	1,4-Dichlorobenzene	106-46-7	22		1	1
10371	1,1-Dichloroethane	75-34-3	19		1	1
10371	1,2-Dichloroethane	107-06-2	22		1	1
10371	1,1-Dichloroethene	75-35-4	20		0.9	1
10371	cis-1,2-Dichloroethene	156-59-2	19		1	1
10371	trans-1,2-Dichloroethene	156-60-5	20		1	1
10371	1,2-Dichloropropane	78-87-5	19		1	1
10371	cis-1,3-Dichloropropene	10061-01-5	19		1	1
10371	trans-1,3-Dichloropropene	10061-02-6	20		0.6	1
10371	Ethylbenzene	100-41-4	22		0.8	1
10371	Methylene Chloride	75-09-2	19		2	1
10371	1,1,2,2-Tetrachloroethane	79-34-5	22		1	1
10371	Tetrachloroethene	127-18-4	23		1	1
10371	Toluene	108-88-3	21		0.8	1
10371	1,1,1-Trichloroethane	71-55-6	18		1	1
10371	1,1,2-Trichloroethane	79-00-5	20		1	1
10371	Trichloroethene	79-01-6	21		1	1
10371	Trichlorofluoromethane	75-69-4	20		2	1
10371	Vinyl Chloride	75-01-4	14		2	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10371	EPA 624 water	EPA 624	1	M120241AA	01/24/2012 18:34	Linda C Pape	1

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Analysis Report

Sample Description: SG-0000-011812 Grab Water
Dow Hanging Rock, OH

LLI Sample # WW 6526805
LLI Group # 1285786
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 14:30 by BW

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 12:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SG000 SDG#: DHR15-05

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**EPA 624**		ug/l		ug/l	
10371	Acrolein	107-02-8	10	U	10	1
10371	Acrylonitrile	107-13-1	10	U	10	1
10371	Benzene	71-43-2	0.9	U	0.9	1
10371	Bromodichloromethane	75-27-4	0.7	U	0.7	1
10371	Bromoform	75-25-2	0.8	U	0.8	1
10371	Bromomethane	74-83-9	2	U	2	1
10371	Carbon Tetrachloride	56-23-5	1	U	1	1
10371	Chlorobenzene	108-90-7	0.8	U	0.8	1
10371	Chloroethane	75-00-3	2	U	2	1
10371	2-Chloroethyl Vinyl Ether	110-75-8	2	U	2	1
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.					
10371	Chloroform	67-66-3	1	U	1	1
10371	Chloromethane	74-87-3	2	U	2	1
10371	Dibromochloromethane	124-48-1	1	U	1	1
10371	1,2-Dichlorobenzene	95-50-1	1	U	1	1
10371	1,3-Dichlorobenzene	541-73-1	1	U	1	1
10371	1,4-Dichlorobenzene	106-46-7	1	U	1	1
10371	1,1-Dichloroethane	75-34-3	1	U	1	1
10371	1,2-Dichloroethane	107-06-2	1	U	1	1
10371	1,1-Dichloroethene	75-35-4	0.9	U	0.9	1
10371	cis-1,2-Dichloroethene	156-59-2	1	U	1	1
10371	trans-1,2-Dichloroethene	156-60-5	1	U	1	1
10371	1,2-Dichloropropane	78-87-5	1	U	1	1
10371	cis-1,3-Dichloropropene	10061-01-5	1	U	1	1
10371	trans-1,3-Dichloropropene	10061-02-6	0.6	U	0.6	1
10371	Ethylbenzene	100-41-4	0.8	U	0.8	1
10371	Methylene Chloride	75-09-2	2	U	2	1
10371	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	1
10371	Tetrachloroethene	127-18-4	1	U	1	1
10371	Toluene	108-88-3	0.8	U	0.8	1
10371	1,1,1-Trichloroethane	71-55-6	1	U	1	1
10371	1,1,2-Trichloroethane	79-00-5	1	U	1	1
10371	Trichloroethene	79-01-6	1	U	1	1
10371	Trichlorofluoromethane	75-69-4	2	U	2	1
10371	Vinyl Chloride	75-01-4	2	U	2	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10371	EPA 624 water	EPA 624	1	M120241AA	01/24/2012 19:00	Linda C Pape	1

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Analysis Report

Sample Description: HGR-IDW-W2 Composite Water
Dow Hanging Rock, OH

LLI Sample # WW 6526806
LLI Group # 1285786
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 14:50 by BW

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 12:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

IDWW2 SDG#: DHR15-06

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**EPA 624**		**ug/l**		**ug/l**	
10371	Acrolein	107-02-8	10	U	10	1
10371	Acrylonitrile	107-13-1	10	U	10	1
10371	Benzene	71-43-2	0.9	U	0.9	1
10371	Bromodichloromethane	75-27-4	0.7	U	0.7	1
10371	Bromoform	75-25-2	0.8	U	0.8	1
10371	Bromomethane	74-83-9	2	U	2	1
10371	Carbon Tetrachloride	56-23-5	1	U	1	1
10371	Chlorobenzene	108-90-7	0.8	U	0.8	1
10371	Chloroethane	75-00-3	2	U	2	1
10371	2-Chloroethyl Vinyl Ether	110-75-8	2	U	2	1
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.					
10371	Chloroform	67-66-3	2	J	1	1
10371	Chloromethane	74-87-3	2	U	2	1
10371	Dibromochloromethane	124-48-1	1	U	1	1
10371	1,2-Dichlorobenzene	95-50-1	1	U	1	1
10371	1,3-Dichlorobenzene	541-73-1	1	U	1	1
10371	1,4-Dichlorobenzene	106-46-7	1	U	1	1
10371	1,1-Dichloroethane	75-34-3	1	U	1	1
10371	1,2-Dichloroethane	107-06-2	1	U	1	1
10371	1,1-Dichloroethene	75-35-4	0.9	U	0.9	1
10371	cis-1,2-Dichloroethene	156-59-2	1	U	1	1
10371	trans-1,2-Dichloroethene	156-60-5	1	U	1	1
10371	1,2-Dichloropropane	78-87-5	1	U	1	1
10371	cis-1,3-Dichloropropene	10061-01-5	1	U	1	1
10371	trans-1,3-Dichloropropene	10061-02-6	0.6	U	0.6	1
10371	Ethylbenzene	100-41-4	0.8	U	0.8	1
10371	Methylene Chloride	75-09-2	2	U	2	1
10371	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	1
10371	Tetrachloroethene	127-18-4	1	U	1	1
10371	Toluene	108-88-3	0.8	U	0.8	1
10371	1,1,1-Trichloroethane	71-55-6	1	U	1	1
10371	1,1,2-Trichloroethane	79-00-5	1	U	1	1
10371	Trichloroethene	79-01-6	1	U	1	1
10371	Trichlorofluoromethane	75-69-4	2	U	2	1
10371	Vinyl Chloride	75-01-4	2	U	2	1
GC/MS Semivolatiles	**EPA 625**		**ug/l**		**ug/l**	
10334	Acenaphthene	83-32-9	0.3	U	0.3	1
10334	Acenaphthylene	208-96-8	0.3	U	0.3	1
10334	Anthracene	120-12-7	0.2	U	0.2	1
10334	Benzidine	92-87-5	19	U	19	1
10334	Benzo(a)anthracene	56-55-3	0.2	U	0.2	1
10334	Benzo(a)pyrene	50-32-8	0.3	U	0.3	1
10334	Benzo(b)fluoranthene	205-99-2	0.3	U	0.3	1
10334	Benzo(g,h,i)perylene	191-24-2	0.2	U	0.2	1
10334	Benzo(k)fluoranthene	207-08-9	0.3	U	0.3	1
10334	4-Bromophenyl-phenylether	101-55-3	0.3	U	0.3	1
10334	Butylbenzylphthalate	85-68-7	0.8	U	0.8	1
10334	Di-n-butylphthalate	84-74-2	0.5	U	0.5	1
10334	4-Chloro-3-methylphenol	59-50-7	0.3	U	0.3	1

Sample Description: HGR-IDW-W2 Composite Water
Dow Hanging Rock, OH

LLI Sample # WW 6526806
LLI Group # 1285786
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 14:50 by BW

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 12:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

IDWW2 SDG#: DHR15-06

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Semivolatiles EPA 625			ug/l		ug/l	
10334	bis(2-Chloroethoxy)methane	111-91-1	0.5	U	0.5	1
10334	bis(2-Chloroethyl)ether	111-44-4	0.4	U	0.4	1
10334	bis(2-Chloroisopropyl)ether	39638-32-9	0.3	U	0.3	1
10334	2-Chloronaphthalene	91-58-7	0.2	U	0.2	1
10334	2-Chlorophenol	95-57-8	0.3	U	0.3	1
10334	4-Chlorophenyl-phenylether	7005-72-3	0.3	U	0.3	1
10334	Chrysene	218-01-9	0.2	U	0.2	1
10334	Dibenz(a,h)anthracene	53-70-3	0.4	U	0.4	1
10334	1,2-Dichlorobenzene	95-50-1	0.3	U	0.3	1
10334	1,3-Dichlorobenzene	541-73-1	0.3	U	0.3	1
10334	1,4-Dichlorobenzene	106-46-7	0.3	U	0.3	1
10334	3,3'-Dichlorobenzidine	91-94-1	0.8	U	0.8	1
10334	2,4-Dichlorophenol	120-83-2	0.3	U	0.3	1
10334	Diethylphthalate	84-66-2	0.3	U	0.3	1
10334	2,4-Dimethylphenol	105-67-9	0.3	J	0.3	1
10334	Dimethylphthalate	131-11-3	1	U	1	1
10334	4,6-Dinitro-2-methylphenol	534-52-1	4	U	4	1
10334	2,4-Dinitrophenol	51-28-5	10	U	10	1
10334	2,4-Dinitrotoluene	121-14-2	0.4	U	0.4	1
10334	2,6-Dinitrotoluene	606-20-2	0.3	U	0.3	1
10334	1,2-Diphenylhydrazine	122-66-7	0.2	U	0.2	1
10334	bis(2-Ethylhexyl)phthalate	117-81-7	1	U	1	1
10334	Fluoranthene	206-44-0	0.3	U	0.3	1
10334	Fluorene	86-73-7	0.3	U	0.3	1
10334	Hexachlorobenzene	118-74-1	1	U	1	1
10334	Hexachlorobutadiene	87-68-3	0.8	U	0.8	1
10334	Hexachlorocyclopentadiene	77-47-4	2	U	2	1
10334	Hexachloroethane	67-72-1	0.4	U	0.4	1
10334	Indeno(1,2,3-cd)pyrene	193-39-5	0.3	U	0.3	1
10334	Isophorone	78-59-1	0.3	U	0.3	1
10334	Naphthalene	91-20-3	0.3	J	0.2	1
10334	Nitrobenzene	98-95-3	0.5	U	0.5	1
10334	2-Nitrophenol	88-75-5	0.5	J	0.4	1
10334	4-Nitrophenol	100-02-7	5	U	5	1
10334	N-Nitrosodimethylamine	62-75-9	2	U	2	1
10334	N-Nitroso-di-n-propylamine	621-64-7	0.4	U	0.4	1
10334	N-Nitrosodiphenylamine	86-30-6	0.3	U	0.3	1
10334	Di-n-octylphthalate	117-84-0	0.5	U	0.5	1
10334	Pentachlorophenol	87-86-5	3	U	3	1
10334	Phenanthrene	85-01-8	0.2	U	0.2	1
10334	Phenol	108-95-2	5	J	0.4	1
10334	Pyrene	129-00-0	0.2	U	0.2	1
10334	1,2,4-Trichlorobenzene	120-82-1	0.3	U	0.3	1
10334	2,4,6-Trichlorophenol	88-06-2	0.7	U	0.7	1
Trial ID: RE						
10334	Acenaphthene	83-32-9	0.3	U	0.3	1
10334	Acenaphthylene	208-96-8	0.3	U	0.3	1
10334	Anthracene	120-12-7	0.2	U	0.2	1
10334	Benzidine	92-87-5	19	U	19	1
10334	Benzo(a)anthracene	56-55-3	0.2	U	0.2	1

Sample Description: HGR-IDW-W2 Composite Water
Dow Hanging Rock, OH

LLI Sample # WW 6526806
LLI Group # 1285786
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 14:50 by BW

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 12:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

IDWW2 SDG#: DHR15-06

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Semivolatiles EPA 625			ug/l		ug/l	
10334	Benzo(a)pyrene	50-32-8	0.3	U	0.3	1
10334	Benzo(b)fluoranthene	205-99-2	0.3	U	0.3	1
10334	Benzo(g,h,i)perylene	191-24-2	0.2	U	0.2	1
10334	Benzo(k)fluoranthene	207-08-9	0.3	U	0.3	1
10334	4-Bromophenyl-phenylether	101-55-3	0.3	U	0.3	1
10334	Butylbenzylphthalate	85-68-7	0.8	U	0.8	1
10334	Di-n-butylphthalate	84-74-2	0.5	U	0.5	1
10334	4-Chloro-3-methylphenol	59-50-7	0.3	U	0.3	1
10334	bis(2-Chloroethoxy)methane	111-91-1	0.5	U	0.5	1
10334	bis(2-Chloroethyl)ether	111-44-4	0.4	U	0.4	1
10334	bis(2-Chloroisopropyl)ether	39638-32-9	0.3	U	0.3	1
10334	2-Chloronaphthalene	91-58-7	0.2	U	0.2	1
10334	2-Chlorophenol	95-57-8	0.3	U	0.3	1
10334	4-Chlorophenyl-phenylether	7005-72-3	0.3	U	0.3	1
10334	Chrysene	218-01-9	0.2	U	0.2	1
10334	Dibenz(a,h)anthracene	53-70-3	0.4	U	0.4	1
10334	1,2-Dichlorobenzene	95-50-1	0.3	U	0.3	1
10334	1,3-Dichlorobenzene	541-73-1	0.3	U	0.3	1
10334	1,4-Dichlorobenzene	106-46-7	0.3	U	0.3	1
10334	3,3'-Dichlorobenzidine	91-94-1	0.8	U	0.8	1
10334	2,4-Dichlorophenol	120-83-2	0.3	U	0.3	1
10334	Diethylphthalate	84-66-2	0.3	U	0.3	1
10334	2,4-Dimethylphenol	105-67-9	0.4	J	0.3	1
10334	Dimethylphthalate	131-11-3	0.9	U	0.9	1
10334	4,6-Dinitro-2-methylphenol	534-52-1	4	U	4	1
10334	2,4-Dinitrophenol	51-28-5	9	U	9	1
10334	2,4-Dinitrotoluene	121-14-2	0.4	U	0.4	1
10334	2,6-Dinitrotoluene	606-20-2	0.3	U	0.3	1
10334	1,2-Diphenylhydrazine	122-66-7	0.2	U	0.2	1
10334	bis(2-Ethylhexyl)phthalate	117-81-7	0.9	U	0.9	1
10334	Fluoranthene	206-44-0	0.3	U	0.3	1
10334	Fluorene	86-73-7	0.3	U	0.3	1
10334	Hexachlorobenzene	118-74-1	0.9	U	0.9	1
10334	Hexachlorobutadiene	87-68-3	0.8	U	0.8	1
10334	Hexachlorocyclopentadiene	77-47-4	2	U	2	1
10334	Hexachloroethane	67-72-1	0.4	U	0.4	1
10334	Indeno(1,2,3-cd)pyrene	193-39-5	0.3	U	0.3	1
10334	Isophorone	78-59-1	0.3	U	0.3	1
10334	Naphthalene	91-20-3	0.3	J	0.2	1
10334	Nitrobenzene	98-95-3	0.5	U	0.5	1
10334	2-Nitrophenol	88-75-5	0.6	J	0.4	1
10334	4-Nitrophenol	100-02-7	5	U	5	1
10334	N-Nitrosodimethylamine	62-75-9	2	U	2	1
10334	N-Nitroso-di-n-propylamine	621-64-7	0.4	U	0.4	1
10334	N-Nitrosodiphenylamine	86-30-6	0.3	U	0.3	1
10334	Di-n-octylphthalate	117-84-0	0.5	U	0.5	1
10334	Pentachlorophenol	87-86-5	3	U	3	1
10334	Phenanthrene	85-01-8	0.2	U	0.2	1
10334	Phenol	108-95-2	8		0.4	1
10334	Pyrene	129-00-0	0.2	U	0.2	1
10334	1,2,4-Trichlorobenzene	120-82-1	0.3	U	0.3	1

Sample Description: HGR-IDW-W2 Composite Water
Dow Hanging Rock, OH

LLI Sample # WW 6526806
LLI Group # 1285786
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 14:50 by BW

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 12:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

IDWW2 SDG#: DHR15-06

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**EPA 625**		**ug/l**		**ug/l**	
10334	2,4,6-Trichlorophenol	88-06-2	0.7	U	0.7	1
	The recoveries of hexachlorocyclopentadiene, dimethylphthalate and diethylphthalate were outside of QC limits in the LCS. This sample was re-extracted outside of the method required holding time, and acceptable QC was observed.					
Metals	**EPA 1631 Revision E**		**ng/l**		**ng/l**	
01574	Low Level Mercury Water	7439-97-6	15.9		3.20	20
	The highest of 3 method blanks is being reported on the QC Summary.					
	EPA 200.7 rev 4.4		**ug/l**		**ug/l**	
07051	Chromium	7440-47-3	25.7		1.1	1
07053	Copper	7440-50-8	82.9		0.94	1
07055	Lead	7439-92-1	3.0	J	2.2	1
07061	Nickel	7440-02-0	1.2	J	0.95	1
07072	Zinc	7440-66-6	9.5	J	3.2	1
Wet Chemistry	**EPA 335.4**		**mg/l**		**mg/l**	
00237	Total Cyanide (water)	57-12-5	0.0050	U	0.0050	1
	SM20 5310 C		**mg/l**		**mg/l**	
00273	Total Organic Carbon	n.a.	1,130		25.0	50
	EPA 1664A		**mg/l**		**mg/l**	
08079	HEM (oil & grease)	n.a.	2.9	J	1.4	1
	SM20 2540 D		**mg/l**		**mg/l**	
00206	Total Suspended Solids	n.a.	6.0	J	3.0	1
	SM20 5210 B		**mg/l**		**mg/l**	
00235	Biochemical Oxygen Demand	n.a.	1,800		8.0	10

BOD is typically derived from the average of those sample aliquots that produce 5-day dissolved oxygen depletion into a method-defined acceptable range. The BOD result above is derived from only the smallest of 5 sample aliquots that achieved this depletion. The other sample aliquots were excluded due to this sample's toxic effect on the BOD test microbes that metabolize organic waste material. Below are the 5 aliquots with their corresponding calculated BOD values:

% of diluted sample	BOD result, mg/l
0.067	1800 *
0.167	739
0.333	646
1.00	307
1.67	240

Sample Description: HGR-IDW-W2 Composite Water
Dow Hanging Rock, OH

LLI Sample # WW 6526806
LLI Group # 1285786
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 14:50 by BW

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 12:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

IDWW2 SDG#: DHR15-06

General Sample Comments

The temperature of the temperature blank bottle(s) for the metals, LL Hg and Cyanide upon receipt at the lab was 6.3 C using a Hg thermometer. The sample bottles were then measured using an IR thermometer and were recorded at 6.8-7.5 C.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10371	EPA 624 water	EPA 624	1	M120241AA	01/24/2012 19:25	Linda C Pape	1
10334	Method 625	EPA 625	1	12021WAD625	01/23/2012 21:33	Holly Berry	1
10334	Method 625	EPA 625	2	12025WAE625	01/27/2012 04:57	Holly Berry	1
08108	625 Water Extraction	EPA 625	1	12021WAD625	01/22/2012 22:30	Nicholas W Shroyer	1
08108	625 Water Extraction	EPA 625	2	12025WAE625	01/26/2012 02:30	Sherry L Morrow	1
01574	Low Level Mercury Water	EPA 1631 Revision E	1	120251573002	01/26/2012 21:50	Parker D Lindstrom	20
07051	Chromium	EPA 200.7 rev 4.4	1	120205716002	01/23/2012 10:34	Damary Valentin	1
07053	Copper	EPA 200.7 rev 4.4	1	120205716002	01/23/2012 10:34	Damary Valentin	1
07055	Lead	EPA 200.7 rev 4.4	1	120205716002	01/23/2012 10:34	Damary Valentin	1
07061	Nickel	EPA 200.7 rev 4.4	1	120205716002	01/23/2012 10:34	Damary Valentin	1
07072	Zinc	EPA 200.7 rev 4.4	1	120205716002	01/23/2012 10:34	Damary Valentin	1
01573	Low Level Hg Digestion Water	EPA 1631 Revision E	1	120251573002	01/25/2012 14:00	Parker D Lindstrom	1
05716	EPA 600 ICP Digest (tot rec)	EPA 200.7 rev 4.4	1	120205716002	01/22/2012 22:30	Annamaria Stipkovits	1
00237	Total Cyanide (water)	EPA 335.4	1	12020102101A	01/23/2012 09:59	K Robert Caulfeild-James	1
00273	Total Organic Carbon	SM20 5310 C	1	12024049502A	01/24/2012 05:00	James S Mathiot	50
00492	Cyanide Water Distillation	EPA 335.4	1	12020102101A	01/20/2012 08:40	Nancy J Shoop	1
08079	HEM (oil & grease)	EPA 1664A	1	12026807901A	01/26/2012 06:18	Noah M Rainbow	1
00206	Total Suspended Solids	SM20 2540 D	1	12020020601A	01/20/2012 09:28	Bronson L Cole	1
00235	Biochemical Oxygen Demand	SM20 5210 B	1	12020023501A	01/20/2012 07:12	Susan E Hibner	10

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Analysis Report

Sample Description: HGR-IDW-W3 Composite Water
Dow Hanging Rock, OH

LLI Sample # WW 6526807
LLI Group # 1285786
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 15:10 by BW

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 12:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

IDWW3 SDG#: DHR15-07*

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**EPA 624**		**ug/l**		**ug/l**	
10371	Acrolein	107-02-8	10	U	10	1
10371	Acrylonitrile	107-13-1	10	U	10	1
10371	Benzene	71-43-2	0.9	U	0.9	1
10371	Bromodichloromethane	75-27-4	0.7	U	0.7	1
10371	Bromoform	75-25-2	0.8	U	0.8	1
10371	Bromomethane	74-83-9	2	U	2	1
10371	Carbon Tetrachloride	56-23-5	1	U	1	1
10371	Chlorobenzene	108-90-7	0.8	U	0.8	1
10371	Chloroethane	75-00-3	2	U	2	1
10371	2-Chloroethyl Vinyl Ether	110-75-8	2	U	2	1
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.					
10371	Chloroform	67-66-3	1	J	1	1
10371	Chloromethane	74-87-3	2	U	2	1
10371	Dibromochloromethane	124-48-1	1	U	1	1
10371	1,2-Dichlorobenzene	95-50-1	1	U	1	1
10371	1,3-Dichlorobenzene	541-73-1	1	U	1	1
10371	1,4-Dichlorobenzene	106-46-7	1	U	1	1
10371	1,1-Dichloroethane	75-34-3	1	U	1	1
10371	1,2-Dichloroethane	107-06-2	1	U	1	1
10371	1,1-Dichloroethene	75-35-4	0.9	U	0.9	1
10371	cis-1,2-Dichloroethene	156-59-2	1	U	1	1
10371	trans-1,2-Dichloroethene	156-60-5	1	U	1	1
10371	1,2-Dichloropropane	78-87-5	1	U	1	1
10371	cis-1,3-Dichloropropene	10061-01-5	1	U	1	1
10371	trans-1,3-Dichloropropene	10061-02-6	0.6	U	0.6	1
10371	Ethylbenzene	100-41-4	0.8	U	0.8	1
10371	Methylene Chloride	75-09-2	2	U	2	1
10371	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	1
10371	Tetrachloroethene	127-18-4	1	U	1	1
10371	Toluene	108-88-3	2	J	0.8	1
10371	1,1,1-Trichloroethane	71-55-6	1	U	1	1
10371	1,1,2-Trichloroethane	79-00-5	1	U	1	1
10371	Trichloroethene	79-01-6	1	U	1	1
10371	Trichlorofluoromethane	75-69-4	2	U	2	1
10371	Vinyl Chloride	75-01-4	2	U	2	1
GC/MS Semivolatiles	**EPA 625**		**ug/l**		**ug/l**	
10334	Acenaphthene	83-32-9	0.3	U	0.3	1
10334	Acenaphthylene	208-96-8	0.3	U	0.3	1
10334	Anthracene	120-12-7	0.2	U	0.2	1
10334	Benzidine	92-87-5	19	U	19	1
10334	Benzo(a)anthracene	56-55-3	0.2	U	0.2	1
10334	Benzo(a)pyrene	50-32-8	0.3	U	0.3	1
10334	Benzo(b)fluoranthene	205-99-2	0.3	U	0.3	1
10334	Benzo(g,h,i)perylene	191-24-2	0.2	U	0.2	1
10334	Benzo(k)fluoranthene	207-08-9	0.3	U	0.3	1
10334	4-Bromophenyl-phenylether	101-55-3	0.3	U	0.3	1
10334	Butylbenzylphthalate	85-68-7	0.8	U	0.8	1
10334	Di-n-butylphthalate	84-74-2	0.5	U	0.5	1
10334	4-Chloro-3-methylphenol	59-50-7	0.3	U	0.3	1

Sample Description: HGR-IDW-W3 Composite Water
Dow Hanging Rock, OH

LLI Sample # WW 6526807
LLI Group # 1285786
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 15:10 by BW

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 12:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

IDWW3 SDG#: DHR15-07*

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Semivolatiles EPA 625			ug/l		ug/l	
10334	bis(2-Chloroethoxy)methane	111-91-1	0.5	U	0.5	1
10334	bis(2-Chloroethyl)ether	111-44-4	0.4	U	0.4	1
10334	bis(2-Chloroisopropyl)ether	39638-32-9	0.3	U	0.3	1
10334	2-Chloronaphthalene	91-58-7	0.2	U	0.2	1
10334	2-Chlorophenol	95-57-8	0.3	U	0.3	1
10334	4-Chlorophenyl-phenylether	7005-72-3	0.3	U	0.3	1
10334	Chrysene	218-01-9	0.2	U	0.2	1
10334	Dibenz(a,h)anthracene	53-70-3	0.4	U	0.4	1
10334	1,2-Dichlorobenzene	95-50-1	0.3	U	0.3	1
10334	1,3-Dichlorobenzene	541-73-1	0.3	U	0.3	1
10334	1,4-Dichlorobenzene	106-46-7	0.3	U	0.3	1
10334	3,3'-Dichlorobenzidine	91-94-1	0.8	U	0.8	1
10334	2,4-Dichlorophenol	120-83-2	0.3	U	0.3	1
10334	Diethylphthalate	84-66-2	0.3	U	0.3	1
10334	2,4-Dimethylphenol	105-67-9	0.3	U	0.3	1
10334	Dimethylphthalate	131-11-3	0.9	U	0.9	1
10334	4,6-Dinitro-2-methylphenol	534-52-1	4	U	4	1
10334	2,4-Dinitrophenol	51-28-5	9	U	9	1
10334	2,4-Dinitrotoluene	121-14-2	0.4	U	0.4	1
10334	2,6-Dinitrotoluene	606-20-2	0.3	U	0.3	1
10334	1,2-Diphenylhydrazine	122-66-7	0.2	U	0.2	1
10334	bis(2-Ethylhexyl)phthalate	117-81-7	0.9	U	0.9	1
10334	Fluoranthene	206-44-0	0.3	U	0.3	1
10334	Fluorene	86-73-7	0.3	U	0.3	1
10334	Hexachlorobenzene	118-74-1	0.9	U	0.9	1
10334	Hexachlorobutadiene	87-68-3	0.8	U	0.8	1
10334	Hexachlorocyclopentadiene	77-47-4	2	U	2	1
10334	Hexachloroethane	67-72-1	0.4	U	0.4	1
10334	Indeno(1,2,3-cd)pyrene	193-39-5	0.3	U	0.3	1
10334	Isophorone	78-59-1	0.3	U	0.3	1
10334	Naphthalene	91-20-3	0.2	U	0.2	1
10334	Nitrobenzene	98-95-3	0.5	U	0.5	1
10334	2-Nitrophenol	88-75-5	1	J	0.4	1
10334	4-Nitrophenol	100-02-7	5	U	5	1
10334	N-Nitrosodimethylamine	62-75-9	2	U	2	1
10334	N-Nitroso-di-n-propylamine	621-64-7	0.4	U	0.4	1
10334	N-Nitrosodiphenylamine	86-30-6	0.3	U	0.3	1
10334	Di-n-octylphthalate	117-84-0	0.5	U	0.5	1
10334	Pentachlorophenol	87-86-5	3	U	3	1
10334	Phenanthrene	85-01-8	0.2	U	0.2	1
10334	Phenol	108-95-2	0.4	U	0.4	1
10334	Pyrene	129-00-0	0.2	U	0.2	1
10334	1,2,4-Trichlorobenzene	120-82-1	0.3	U	0.3	1
10334	2,4,6-Trichlorophenol	88-06-2	0.7	U	0.7	1
Trial ID: RE						
10334	Acenaphthene	83-32-9	0.3	U	0.3	1
10334	Acenaphthylene	208-96-8	0.3	U	0.3	1
10334	Anthracene	120-12-7	0.2	U	0.2	1
10334	Benzidine	92-87-5	19	U	19	1
10334	Benzo(a)anthracene	56-55-3	0.2	U	0.2	1

Sample Description: HGR-IDW-W3 Composite Water
Dow Hanging Rock, OH

LLI Sample # WW 6526807
LLI Group # 1285786
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 15:10 by BW

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 12:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

IDWW3 SDG#: DHR15-07*

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Semivolatiles EPA 625			ug/l		ug/l	
10334	Benzo(a)pyrene	50-32-8	0.3	U	0.3	1
10334	Benzo(b)fluoranthene	205-99-2	0.3	U	0.3	1
10334	Benzo(g,h,i)perylene	191-24-2	0.2	U	0.2	1
10334	Benzo(k)fluoranthene	207-08-9	0.3	U	0.3	1
10334	4-Bromophenyl-phenylether	101-55-3	0.3	U	0.3	1
10334	Butylbenzylphthalate	85-68-7	0.8	U	0.8	1
10334	Di-n-butylphthalate	84-74-2	0.5	U	0.5	1
10334	4-Chloro-3-methylphenol	59-50-7	0.3	U	0.3	1
10334	bis(2-Chloroethoxy)methane	111-91-1	0.5	U	0.5	1
10334	bis(2-Chloroethyl)ether	111-44-4	0.4	U	0.4	1
10334	bis(2-Chloroisopropyl)ether	39638-32-9	0.3	U	0.3	1
10334	2-Chloronaphthalene	91-58-7	0.2	U	0.2	1
10334	2-Chlorophenol	95-57-8	0.3	U	0.3	1
10334	4-Chlorophenyl-phenylether	7005-72-3	0.3	U	0.3	1
10334	Chrysene	218-01-9	0.2	U	0.2	1
10334	Dibenz(a,h)anthracene	53-70-3	0.4	U	0.4	1
10334	1,2-Dichlorobenzene	95-50-1	0.3	U	0.3	1
10334	1,3-Dichlorobenzene	541-73-1	0.3	U	0.3	1
10334	1,4-Dichlorobenzene	106-46-7	0.3	U	0.3	1
10334	3,3'-Dichlorobenzidine	91-94-1	0.8	U	0.8	1
10334	2,4-Dichlorophenol	120-83-2	0.3	U	0.3	1
10334	Diethylphthalate	84-66-2	0.3	U	0.3	1
10334	2,4-Dimethylphenol	105-67-9	0.3	U	0.3	1
10334	Dimethylphthalate	131-11-3	0.9	U	0.9	1
10334	4,6-Dinitro-2-methylphenol	534-52-1	4	U	4	1
10334	2,4-Dinitrophenol	51-28-5	9	U	9	1
10334	2,4-Dinitrotoluene	121-14-2	0.4	U	0.4	1
10334	2,6-Dinitrotoluene	606-20-2	0.3	U	0.3	1
10334	1,2-Diphenylhydrazine	122-66-7	0.2	U	0.2	1
10334	bis(2-Ethylhexyl)phthalate	117-81-7	0.9	U	0.9	1
10334	Fluoranthene	206-44-0	0.3	U	0.3	1
10334	Fluorene	86-73-7	0.3	U	0.3	1
10334	Hexachlorobenzene	118-74-1	0.9	U	0.9	1
10334	Hexachlorobutadiene	87-68-3	0.8	U	0.8	1
10334	Hexachlorocyclopentadiene	77-47-4	2	U	2	1
10334	Hexachloroethane	67-72-1	0.4	U	0.4	1
10334	Indeno(1,2,3-cd)pyrene	193-39-5	0.3	U	0.3	1
10334	Isophorone	78-59-1	0.3	U	0.3	1
10334	Naphthalene	91-20-3	0.2	J	0.2	1
10334	Nitrobenzene	98-95-3	0.5	U	0.5	1
10334	2-Nitrophenol	88-75-5	0.4	U	0.4	1
10334	4-Nitrophenol	100-02-7	5	U	5	1
10334	N-Nitrosodimethylamine	62-75-9	2	U	2	1
10334	N-Nitroso-di-n-propylamine	621-64-7	0.4	U	0.4	1
10334	N-Nitrosodiphenylamine	86-30-6	0.3	U	0.3	1
10334	Di-n-octylphthalate	117-84-0	0.5	U	0.5	1
10334	Pentachlorophenol	87-86-5	3	U	3	1
10334	Phenanthrene	85-01-8	0.2	U	0.2	1
10334	Phenol	108-95-2	0.4	U	0.4	1
10334	Pyrene	129-00-0	0.2	U	0.2	1
10334	1,2,4-Trichlorobenzene	120-82-1	0.3	U	0.3	1

Sample Description: HGR-IDW-W3 Composite Water
Dow Hanging Rock, OH

LLI Sample # WW 6526807
LLI Group # 1285786
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 15:10 by BW

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 12:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

IDWW3 SDG#: DHR15-07*

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**EPA 625**		**ug/l**		**ug/l**	
10334	2,4,6-Trichlorophenol	88-06-2	0.7	U	0.7	1
	The recoveries of hexachlorocyclopentadiene, dimethylphthalate and diethylphthalate were outside of QC limits in the LCS. This sample was re-extracted outside of the method required holding time, and acceptable QC was observed.					
Metals	**EPA 1631 Revision E**		**ng/l**		**ng/l**	
01574	Low Level Mercury Water	7439-97-6	1.60	U	1.60	10
	The highest of 3 method blanks is being reported on the QC Summary. Reporting limits were raised due to interference from the sample matrix.					
	EPA 200.7 rev 4.4		**ug/l**		**ug/l**	
07051	Chromium	7440-47-3	1.1	U	1.1	1
07053	Copper	7440-50-8	1.4	J	0.94	1
07055	Lead	7439-92-1	2.2	U	2.2	1
07061	Nickel	7440-02-0	5.6	J	0.95	1
07072	Zinc	7440-66-6	60.5		3.2	1
Wet Chemistry	**EPA 335.4**		**mg/l**		**mg/l**	
00237	Total Cyanide (water)	57-12-5	0.0050	U	0.0050	1
	SM20 5310 C		**mg/l**		**mg/l**	
00273	Total Organic Carbon	n.a.	6.8		0.50	1
	EPA 1664A		**mg/l**		**mg/l**	
08079	HEM (oil & grease)	n.a.	1.4	U	1.4	1
	SM20 2540 D		**mg/l**		**mg/l**	
00206	Total Suspended Solids	n.a.	16.4		3.0	1
	SM20 5210 B		**mg/l**		**mg/l**	
00235	Biochemical Oxygen Demand	n.a.	12.0		0.80	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10371	EPA 624 water	EPA 624	1	M120241AA	01/24/2012 19:51	Linda C Pape	1
10334	Method 625	EPA 625	1	12021WAD625	01/23/2012 22:04	Holly Berry	1
10334	Method 625	EPA 625	2	12025WAE625	01/27/2012 05:27	Holly Berry	1
08108	625 Water Extraction	EPA 625	1	12021WAD625	01/22/2012 22:30	Nicholas W Shroyer	1

Sample Description: HGR-IDW-W3 Composite Water
Dow Hanging Rock, OH

LLI Sample # WW 6526807
LLI Group # 1285786
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 15:10 by BW

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 12:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

IDWW3 SDG#: DHR15-07*

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08108	625 Water Extraction	EPA 625	2	12025WAE625	01/26/2012 02:30	Sherry L Morrow	1
01574	Low Level Mercury Water	EPA 1631 Revision E	1	120251573002	01/26/2012 22:39	Parker D Lindstrom	10
07051	Chromium	EPA 200.7 rev 4.4	1	120205716002	01/23/2012 10:38	Damary Valentin	1
07053	Copper	EPA 200.7 rev 4.4	1	120205716002	01/23/2012 10:38	Damary Valentin	1
07055	Lead	EPA 200.7 rev 4.4	1	120205716002	01/23/2012 10:38	Damary Valentin	1
07061	Nickel	EPA 200.7 rev 4.4	1	120205716002	01/23/2012 10:38	Damary Valentin	1
07072	Zinc	EPA 200.7 rev 4.4	1	120205716002	01/23/2012 10:38	Damary Valentin	1
01573	Low Level Hg Digestion Water	EPA 1631 Revision E	1	120251573002	01/25/2012 14:00	Parker D Lindstrom	1
05716	EPA 600 ICP Digest (tot rec)	EPA 200.7 rev 4.4	1	120205716002	01/22/2012 22:30	Annamaria Stipkovits	1
00237	Total Cyanide (water)	EPA 335.4	1	12020102101A	01/23/2012 10:00	K Robert Caulfeild-James	1
00273	Total Organic Carbon	SM20 5310 C	1	12024049502A	01/24/2012 05:08	James S Mathiot	1
00492	Cyanide Water Distillation	EPA 335.4	1	12020102101A	01/20/2012 08:40	Nancy J Shoop	1
08079	HEM (oil & grease)	EPA 1664A	1	12026807901A	01/26/2012 06:18	Noah M Rainbow	1
00206	Total Suspended Solids	SM20 2540 D	1	12020020601A	01/20/2012 09:28	Bronson L Cole	1
00235	Biochemical Oxygen Demand	SM20 5210 B	1	12020023501A	01/20/2012 07:12	Susan E Hibner	1

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1285786
Reported: 01/31/12 at 12:03 PM

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: M120241AA	Sample number(s): 6526799-6526807								
Acrolein	10	U	10.	ug/l	94		53-126		
Acrylonitrile	10	U	10.	ug/l	79		61-120		
Benzene	0.9	U	0.9	ug/l	95		80-121		
Bromodichloromethane	0.7	U	0.7	ug/l	98		76-123		
Bromoform	0.8	U	0.8	ug/l	110		63-123		
Bromomethane	2	U	2.	ug/l	83		61-128		
Carbon Tetrachloride	1	U	1.	ug/l	84		75-121		
Chlorobenzene	0.8	U	0.8	ug/l	99		80-120		
Chloroethane	2	U	2.	ug/l	80		61-128		
2-Chloroethyl Vinyl Ether	2	U	2.	ug/l	87		47-128		
Chloroform	1	U	1.	ug/l	82		80-125		
Chloromethane	2	U	2.	ug/l	75		63-135		
Dibromochloromethane	1	U	1.	ug/l	105		74-121		
1,2-Dichlorobenzene	1	U	1.	ug/l	108		78-125		
1,3-Dichlorobenzene	1	U	1.	ug/l	105		78-124		
1,4-Dichlorobenzene	1	U	1.	ug/l	106		78-124		
1,1-Dichloroethane	1	U	1.	ug/l	92		75-130		
1,2-Dichloroethane	1	U	1.	ug/l	105		72-138		
1,1-Dichloroethene	0.9	U	0.9	ug/l	89		77-129		
cis-1,2-Dichloroethene	1	U	1.	ug/l	93		78-125		
trans-1,2-Dichloroethene	1	U	1.	ug/l	91		79-125		
1,2-Dichloropropane	1	U	1.	ug/l	89		78-121		
cis-1,3-Dichloropropene	1	U	1.	ug/l	95		79-120		
trans-1,3-Dichloropropene	0.6	U	0.6	ug/l	99		74-120		
Ethylbenzene	0.8	U	0.8	ug/l	100		80-120		
Methylene Chloride	2	U	2.	ug/l	93		77-128		
1,1,2,2-Tetrachloroethane	1	U	1.	ug/l	106		80-120		
Tetrachloroethene	1	U	1.	ug/l	104		77-127		
Toluene	0.8	U	0.8	ug/l	99		80-120		
1,1,1-Trichloroethane	1	U	1.	ug/l	82		74-127		
1,1,2-Trichloroethane	1	U	1.	ug/l	103		80-120		
Trichloroethene	1	U	1.	ug/l	96		80-120		
Trichlorofluoromethane	2	U	2.	ug/l	97		67-124		
Vinyl Chloride	2	U	2.	ug/l	80		62-129		
Batch number: 12021WAD625	Sample number(s): 6526806-6526807								
Acenaphthene	0.3	U	0.3	ug/l	100		75-117		
Acenaphthylene	0.3	U	0.3	ug/l	96		75-122		
Anthracene	0.2	U	0.2	ug/l	107		75-116		
Benzidine	20	U	20.	ug/l	64		16-104		
Benzo(a)anthracene	0.2	U	0.2	ug/l	100		76-117		
Benzo(a)pyrene	0.3	U	0.3	ug/l	101		69-143		
Benzo(b)fluoranthene	0.3	U	0.3	ug/l	101		64-145		
Benzo(g,h,i)perylene	0.2	U	0.2	ug/l	100		66-145		
Benzo(k)fluoranthene	0.3	U	0.3	ug/l	101		66-145		

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1285786
Reported: 01/31/12 at 12:03 PM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
4-Bromophenyl-phenylether	0.3	U	0.3	ug/l	104		80-112		
Butylbenzylphthalate	0.8	U	0.8	ug/l	99		80-125		
Di-n-butylphthalate	0.5	U	0.5	ug/l	106		76-120		
4-Chloro-3-methylphenol	0.3	U	0.3	ug/l	95		75-113		
bis(2-Chloroethoxy)methane	0.5	U	0.5	ug/l	102		69-128		
bis(2-Chloroethyl)ether	0.4	U	0.4	ug/l	101		72-114		
bis(2-Chloroisopropyl)ether	0.3	U	0.3	ug/l	92		87-134		
2-Chloronaphthalene	0.2	U	0.2	ug/l	95		57-112		
2-Chlorophenol	0.3	U	0.3	ug/l	83		78-118		
4-Chlorophenyl-phenylether	0.3	U	0.3	ug/l	96		76-115		
Chrysene	0.2	U	0.2	ug/l	103		81-118		
Dibenz(a,h)anthracene	0.4	U	0.4	ug/l	99		68-144		
1,2-Dichlorobenzene	0.3	U	0.3	ug/l	76		60-111		
1,3-Dichlorobenzene	0.3	U	0.3	ug/l	68		67-110		
1,4-Dichlorobenzene	0.3	U	0.3	ug/l	71		68-111		
3,3'-Dichlorobenzidine	0.8	U	0.8	ug/l	82		33-124		
2,4-Dichlorophenol	0.3	U	0.3	ug/l	98		72-127		
Diethylphthalate	0.3	U	0.3	ug/l	65*		74-120		
2,4-Dimethylphenol	0.3	U	0.3	ug/l	95		70-123		
Dimethylphthalate	1	U	1.	ug/l	26*		52-122		
4,6-Dinitro-2-methylphenol	4	U	4.	ug/l	103		65-120		
2,4-Dinitrophenol	10	U	10.	ug/l	81		64-140		
2,4-Dinitrotoluene	0.4	U	0.4	ug/l	104		74-121		
2,6-Dinitrotoluene	0.3	U	0.3	ug/l	98		80-115		
1,2-Diphenylhydrazine	0.2	U	0.2	ug/l	104		75-114		
bis(2-Ethylhexyl)phthalate	1	U	1.	ug/l	99		74-118		
Fluoranthene	0.3	U	0.3	ug/l	103		86-119		
Fluorene	0.3	U	0.3	ug/l	94		74-117		
Hexachlorobenzene	1	U	1.	ug/l	106		75-114		
Hexachlorobutadiene	0.8	U	0.8	ug/l	74		58-116		
Hexachlorocyclopentadiene	2	U	2.	ug/l	27*		38-133		
Hexachloroethane	0.4	U	0.4	ug/l	61		44-113		
Indeno(1,2,3-cd)pyrene	0.3	U	0.3	ug/l	103		67-143		
Isophorone	0.3	U	0.3	ug/l	99		75-123		
Naphthalene	0.2	U	0.2	ug/l	95		73-118		
Nitrobenzene	0.5	U	0.5	ug/l	98		74-121		
2-Nitrophenol	0.4	U	0.4	ug/l	99		77-120		
4-Nitrophenol	5	U	5.	ug/l	39		27-80		
N-Nitroso-di-n-propylamine	0.4	U	0.4	ug/l	93		68-114		
N-Nitrosodimethylamine	2	U	2.	ug/l	46		44-81		
N-Nitrosodiphenylamine	0.3	U	0.3	ug/l	94		84-135		
Di-n-octylphthalate	0.5	U	0.5	ug/l	105		65-155		
Pentachlorophenol	3	U	3.	ug/l	88		55-137		
Phenanthrene	0.2	U	0.2	ug/l	101		77-113		
Phenol	0.4	U	0.4	ug/l	31		26-71		
Pyrene	0.2	U	0.2	ug/l	101		76-115		
1,2,4-Trichlorobenzene	0.3	U	0.3	ug/l	84		70-119		
2,4,6-Trichlorophenol	0.7	U	0.7	ug/l	94		83-120		
Batch number: 12025WAE625	Sample number(s): 6526806-6526807								
Acenaphthene	0.3	U	0.3	ug/l	106		75-117		
Acenaphthylene	0.3	U	0.3	ug/l	107		75-122		
Anthracene	0.2	U	0.2	ug/l	111		75-116		
Benzidine	20	U	20.	ug/l	46		16-104		
Benzo(a)anthracene	0.2	U	0.2	ug/l	103		76-117		
Benzo(a)pyrene	0.3	U	0.3	ug/l	104		69-143		
Benzo(b)fluoranthene	0.3	U	0.3	ug/l	112		64-145		
Benzo(g,h,i)perylene	0.2	U	0.2	ug/l	94		66-145		

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1285786
Reported: 01/31/12 at 12:03 PM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Benzo(k)fluoranthene	0.3	U	0.3	ug/l	101		66-145		
4-Bromophenyl-phenylether	0.3	U	0.3	ug/l	110		80-112		
Butylbenzylphthalate	0.8	U	0.8	ug/l	113		80-125		
Di-n-butylphthalate	0.5	U	0.5	ug/l	115		76-120		
4-Chloro-3-methylphenol	0.3	U	0.3	ug/l	111		75-113		
bis(2-Chloroethoxy)methane	0.5	U	0.5	ug/l	104		69-128		
bis(2-Chloroethyl)ether	0.4	U	0.4	ug/l	107		72-114		
bis(2-Chloroisopropyl)ether	0.3	U	0.3	ug/l	101		87-134		
2-Chloronaphthalene	0.2	U	0.2	ug/l	94		57-112		
2-Chlorophenol	0.3	U	0.3	ug/l	101		78-118		
4-Chlorophenyl-phenylether	0.3	U	0.3	ug/l	104		76-115		
Chrysene	0.2	U	0.2	ug/l	108		81-118		
Dibenz(a,h)anthracene	0.4	U	0.4	ug/l	97		68-144		
1,2-Dichlorobenzene	0.3	U	0.3	ug/l	91		60-111		
1,3-Dichlorobenzene	0.3	U	0.3	ug/l	90		67-110		
1,4-Dichlorobenzene	0.3	U	0.3	ug/l	88		68-111		
3,3'-Dichlorobenzidine	0.8	U	0.8	ug/l	74		33-124		
2,4-Dichlorophenol	0.3	U	0.3	ug/l	101		72-127		
Diethylphthalate	0.3	U	0.3	ug/l	104		74-120		
2,4-Dimethylphenol	0.3	U	0.3	ug/l	97		70-123		
Dimethylphthalate	1	U	1.	ug/l	102		52-122		
4,6-Dinitro-2-methylphenol	4	U	4.	ug/l	103		65-120		
2,4-Dinitrophenol	10	U	10.	ug/l	103		64-140		
2,4-Dinitrotoluene	0.4	U	0.4	ug/l	109		74-121		
2,6-Dinitrotoluene	0.3	U	0.3	ug/l	105		80-115		
1,2-Diphenylhydrazine	0.2	U	0.2	ug/l	111		75-114		
bis(2-Ethylhexyl)phthalate	1	U	1.	ug/l	113		74-118		
Fluoranthene	0.3	U	0.3	ug/l	109		86-119		
Fluorene	0.3	U	0.3	ug/l	97		74-117		
Hexachlorobenzene	1	U	1.	ug/l	107		75-114		
Hexachlorobutadiene	0.8	U	0.8	ug/l	90		58-116		
Hexachlorocyclopentadiene	2	U	2.	ug/l	60		38-133		
Hexachloroethane	0.4	U	0.4	ug/l	87		44-113		
Indeno(1,2,3-cd)pyrene	0.3	U	0.3	ug/l	97		67-143		
Isophorone	0.3	U	0.3	ug/l	102		75-123		
Naphthalene	0.2	U	0.2	ug/l	101		73-118		
Nitrobenzene	0.5	U	0.5	ug/l	106		74-121		
2-Nitrophenol	0.4	U	0.4	ug/l	98		77-120		
4-Nitrophenol	5	U	5.	ug/l	59		27-80		
N-Nitroso-di-n-propylamine	0.4	U	0.4	ug/l	103		68-114		
N-Nitrosodimethylamine	2	U	2.	ug/l	61		44-81		
N-Nitrosodiphenylamine	0.3	U	0.3	ug/l	107		84-135		
Di-n-octylphthalate	0.5	U	0.5	ug/l	110		65-155		
Pentachlorophenol	3	U	3.	ug/l	88		55-137		
Phenanthrene	0.2	U	0.2	ug/l	108		77-113		
Phenol	0.4	U	0.4	ug/l	62		26-71		
Pyrene	0.2	U	0.2	ug/l	115		76-115		
1,2,4-Trichlorobenzene	0.3	U	0.3	ug/l	89		70-119		
2,4,6-Trichlorophenol	0.7	U	0.7	ug/l	107		83-120		
Batch number: 120205716002	Sample number(s): 6526806-6526807								
Chromium	1.1	U	1.1	ug/l	99		90-110		
Copper	0.94	U	0.94	ug/l	102		90-110		
Lead	2.2	U	2.2	ug/l	106		90-110		
Nickel	0.95	U	0.95	ug/l	106		90-111		
Zinc	3.2	U	3.2	ug/l	102		90-110		
Batch number: 120251573002	Sample number(s): 6526806-6526807								

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1285786
Reported: 01/31/12 at 12:03 PM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Low Level Mercury Water	0.160	U	0.160	ng/l	90		79-121		
Batch number: 12020102101A	Sample number(s): 6526806-6526807								
Total Cyanide (water)	0.0050	U	0.0050	mg/l	99		90-110		
Batch number: 12024049502A	Sample number(s): 6526806-6526807								
Total Organic Carbon	0.50	U	0.50	mg/l	94		91-113		
Batch number: 12020020601A	Sample number(s): 6526806-6526807								
Total Suspended Solids	3.0	U	3.0	mg/l	96		80-105		
Batch number: 12020023501A	Sample number(s): 6526806-6526807								
Biochemical Oxygen Demand					96		85-115		
Batch number: 12026807901A	Sample number(s): 6526806-6526807								
HEM (oil & grease)	2.3	J	1.4	mg/l	81	85	78-114	5	16

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: M120241AA	Sample number(s): 6526799-6526807 UNSPK: 6526802								
Acrolein	91	92	40-128	0	30				
Acrylonitrile	78	77	58-124	1	30				
Benzene	102	102	83-132	0	30				
Bromodichloromethane	104	104	78-128	0	30				
Bromoform	109	110	59-129	1	30				
Bromomethane	73	72	63-134	1	30				
Carbon Tetrachloride	93	93	76-147	0	30				
Chlorobenzene	101	105	82-121	4	30				
Chloroethane	78	77	65-138	0	30				
2-Chloroethyl Vinyl Ether	0*	0*	10-172	0	30				
Chloroform	86	85	82-132	1	30				
Chloromethane	53*	57*	63-149	7	30				
Dibromochloromethane	106	107	72-128	1	30				
1,2-Dichlorobenzene	111	112	79-126	1	30				
1,3-Dichlorobenzene	109	112	79-126	3	30				
1,4-Dichlorobenzene	109	111	79-126	2	30				
1,1-Dichloroethane	99	97	79-141	1	30				
1,2-Dichloroethane	111	112	75-140	1	30				
1,1-Dichloroethene	100	98	85-146	2	30				
cis-1,2-Dichloroethene	99	97	81-134	2	30				
trans-1,2-Dichloroethene	98	98	84-138	1	30				
1,2-Dichloropropane	94	94	77-130	0	30				
cis-1,3-Dichloropropene	94	95	74-113	1	30				
trans-1,3-Dichloropropene	98	102	69-116	5	30				
Ethylbenzene	107	108	82-124	1	30				
Methylene Chloride	96	95	77-134	1	30				
1,1,2,2-Tetrachloroethane	108	108	84-116	1	30				
Tetrachloroethene	114	116	78-136	2	30				
Toluene	104	106	84-123	2	30				

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

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Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1285786
Reported: 01/31/12 at 12:03 PM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
1,1,1-Trichloroethane	89	88	83-137	1	30				
1,1,2-Trichloroethane	102	102	85-121	0	30				
Trichloroethene	105	104	86-131	1	30				
Trichlorofluoromethane	99	99	73-149	1	30				
Vinyl Chloride	68	68	66-146	0	30				
Batch number: 12021WAD625	Sample number(s): 6526806-6526807 UNSPK: P527104								
Acenaphthene	98	95	74-112	7	30				
Acenaphthylene	97	95	75-119	6	30				
Anthracene	105	105	89-115	4	30				
Benzidine	62	64	20-137	0	30				
Benzo(a)anthracene	101	101	82-105	4	30				
Benzo(a)pyrene	103	97	70-121	10	30				
Benzo(b)fluoranthene	103	96	74-118	11	30				
Benzo(g,h,i)perylene	103	94	74-129	13	30				
Benzo(k)fluoranthene	109*	102	75-108	10	30				
4-Bromophenyl-phenylether	100	97	74-109	8	30				
Butylbenzylphthalate	99	107	74-117	3	30				
Di-n-butylphthalate	105	106	68-115	4	30				
4-Chloro-3-methylphenol	91	89	54-126	7	30				
bis(2-Chloroethoxy)methane	97	100	73-130	1	30				
bis(2-Chloroethyl)ether	109*	94	76-107	18	30				
bis(2-Chloroisopropyl)ether	96	85	71-151	17	30				
2-Chloronaphthalene	94	84	73-121	15	30				
2-Chlorophenol	84	79*	81-99	10	30				
4-Chlorophenyl-phenylether	94	103	68-110	5	30				
Chrysene	105	102	93-113	7	30				
Dibenz(a,h)anthracene	100	99	79-125	5	30				
1,2-Dichlorobenzene	88	73*	81-113	22	30				
1,3-Dichlorobenzene	78*	69*	80-111	17	30				
1,4-Dichlorobenzene	79*	69*	80-113	18	30				
3,3'-Dichlorobenzidine	67	81	32-116	13	30				
2,4-Dichlorophenol	93	93	77-98	5	30				
Diethylphthalate	66*	68*	69-110	1	30				
2,4-Dimethylphenol	59*	61*	71-102	1	30				
Dimethylphthalate	27*	26*	62-120	6	30				
4,6-Dinitro-2-methylphenol	105	96	46-150	13	30				
2,4-Dinitrophenol	87	81	10-107	11	30				
2,4-Dinitrotoluene	101	105	79-107	0	30				
2,6-Dinitrotoluene	99	96	83-107	7	30				
1,2-Diphenylhydrazine	95	97	78-117	2	30				
bis(2-Ethylhexyl)phthalate	102	101	63-133	5	30				
Fluoranthene	102	103	69-119	3	30				
Fluorene	92	94	74-109	2	30				
Hexachlorobenzene	114*	106	68-110	11	30				
Hexachlorobutadiene	80	81	62-125	3	30				
Hexachlorocyclopentadiene	63	61	49-127	6	30				
Hexachloroethane	70	62*	65-110	16	30				
Indeno(1,2,3-cd)pyrene	103	99	79-124	8	30				
Isophorone	102	94	84-107	13	30				
Naphthalene	101	96	69-106	9	30				
Nitrobenzene	95	97	75-109	3	30				
2-Nitrophenol	100	96	66-120	8	30				

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1285786
Reported: 01/31/12 at 12:03 PM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
4-Nitrophenol	40	39	10-88	5	30				
N-Nitroso-di-n-propylamine	103	88	74-110	21	30				
N-Nitrosodimethylamine	53	50	38-98	9	30				
N-Nitrosodiphenylamine	107	103	84-142	9	30				
Di-n-octylphthalate	109	101	64-121	12	30				
Pentachlorophenol	75	73	21-110	8	30				
Phenanthrene	109	95	88-116	18	30				
Phenol	29	28	20-69	8	30				
Pyrene	104	102	82-113	7	30				
1,2,4-Trichlorobenzene	83	84	73-113	4	30				
2,4,6-Trichlorophenol	86	89	73-110	2	30				
Batch number: 12025WAE625	Sample number(s): 6526806-6526807 UNSPK: P527104								
Acenaphthene	109	104	74-112	5	30				
Acenaphthylene	108	102	75-119	6	30				
Anthracene	114	112	89-115	2	30				
Benzidine	57	54	20-137	5	30				
Benzo(a)anthracene	105	103	82-105	2	30				
Benzo(a)pyrene	103	108	70-121	5	30				
Benzo(b)fluoranthene	104	105	74-118	1	30				
Benzo(g,h,i)perylene	84	89	74-129	6	30				
Benzo(k)fluoranthene	106	112*	75-108	6	30				
4-Bromophenyl-phenylether	108	101	74-109	7	30				
Butylbenzylphthalate	117	112	74-117	4	30				
Di-n-butylphthalate	108	106	68-115	1	30				
4-Chloro-3-methylphenol	100	99	54-126	2	30				
bis(2-Chloroethoxy)methane	106	106	73-130	0	30				
bis(2-Chloroethyl)ether	109*	106	76-107	3	30				
bis(2-Chloroisopropyl)ether	102	98	71-151	4	30				
2-Chloronaphthalene	106	97	73-121	9	30				
2-Chlorophenol	98	97	81-99	1	30				
4-Chlorophenyl-phenylether	108	107	68-110	2	30				
Chrysene	113	108	93-113	4	30				
Dibenz(a,h)anthracene	92	95	79-125	3	30				
1,2-Dichlorobenzene	92	96	81-113	4	30				
1,3-Dichlorobenzene	91	92	80-111	1	30				
1,4-Dichlorobenzene	90	89	80-113	2	30				
3,3'-Dichlorobenzidine	85	75	32-116	13	30				
2,4-Dichlorophenol	99*	97	77-98	2	30				
Diethylphthalate	102	97	69-110	5	30				
2,4-Dimethylphenol	63*	62*	71-102	1	30				
Dimethylphthalate	92	81	62-120	14	30				
4,6-Dinitro-2-methylphenol	99	94	46-150	5	30				
2,4-Dinitrophenol	104	87	10-107	18	30				
2,4-Dinitrotoluene	109*	106	79-107	3	30				
2,6-Dinitrotoluene	111*	104	83-107	6	30				
1,2-Diphenylhydrazine	105	103	78-117	2	30				
bis(2-Ethylhexyl)phthalate	115	114	63-133	2	30				
Fluoranthene	105	106	69-119	1	30				
Fluorene	100	92	74-109	8	30				
Hexachlorobenzene	107	102	68-110	4	30				
Hexachlorobutadiene	95	98	62-125	4	30				
Hexachlorocyclopentadiene	84	79	49-127	7	30				

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1285786
Reported: 01/31/12 at 12:03 PM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc		DUP Conc		DUP RPD	Dup RPD Max
Hexachloroethane	90	89	65-110	1	30						
Indeno(1,2,3-cd)pyrene	89	92	79-124	3	30						
Isophorone	104	99	84-107	5	30						
Naphthalene	101	100	69-106	1	30						
Nitrobenzene	102	99	75-109	3	30						
2-Nitrophenol	101	102	66-120	1	30						
4-Nitrophenol	64	61	10-88	5	30						
N-Nitroso-di-n-propylamine	104	98	74-110	6	30						
N-Nitrosodimethylamine	61	61	38-98	1	30						
N-Nitrosodiphenylamine	107	103	84-142	4	30						
Di-n-octylphthalate	108	113	64-121	4	30						
Pentachlorophenol	77	47	21-110	48*	30						
Phenanthrene	107	104	88-116	2	30						
Phenol	53	50	20-69	6	30						
Pyrene	115*	113	82-113	1	30						
1,2,4-Trichlorobenzene	101	92	73-113	9	30						
2,4,6-Trichlorophenol	98	92	73-110	7	30						
Batch number: 120205716002	Sample number(s): 6526806-6526807 UNSPK: P527124 BKG: P527124										
Chromium	99		81-120			4.2	J	4.7	J	11 (1)	20
Copper	103		86-122			13.6		13.1		4 (1)	20
Lead	106		70-130			2.2	U	2.2	U	0 (1)	20
Nickel	105		86-115			9.4	J	9.7	J	3 (1)	20
Zinc	100		85-112			54.8		55.7		2 (1)	20
Batch number: 120251573002	Sample number(s): 6526806-6526807 UNSPK: 6526806										
Low Level Mercury Water	80	78	71-125	2	20						
Batch number: 12020102101A	Sample number(s): 6526806-6526807 UNSPK: P527124 BKG: P527124										
Total Cyanide (water)	97		90-110			0.0050 U		0.0050 U		0 (1)	20
Batch number: 12024049502A	Sample number(s): 6526806-6526807 UNSPK: P526519 BKG: P526519										
Total Organic Carbon	105		63-142			6.0		6.3		6*	3
Batch number: 12020020601A	Sample number(s): 6526806-6526807 BKG: P526630										
Total Suspended Solids						223		234		5 (1)	10
Batch number: 12020023501A	Sample number(s): 6526806-6526807 UNSPK: P526631 BKG: P526630										
Biochemical Oxygen Demand	99	105	75-139	6	8	247		219		12	15

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed
unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: EPA 624 water
Batch number: M120241AA

	1,2-Dichloroethane-d4	Fluorobenzene	4-Bromofluorobenzene
6526799	81	99	99

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1285786
Reported: 01/31/12 at 12:03 PM

Surrogate Quality Control

6526800	82	101	101
6526801	80	99	100
6526802	81	100	98
6526803	81	102	102
6526804	81	102	103
6526805	80	100	101
6526806	84	98	103
6526807	81	99	102
Blank	81	99	101
LCS	81	101	102
MS	81	102	102
MSD	81	102	103
Limits:	76-114	80-120	86-115

Analysis Name: Method 625
Batch number: 12021WAD625

	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14	Phenol-d6	2-Fluorophenol	2,4,6-Tribromophenol
6526806	99	98	81	25	43	116
6526807	99	84	83	1*	2*	39
Blank	68	64	58	17	29	64
LCS	99	90	86	30	45	100
MS	95	88	86	29	43	90
MSD	90	85	84	28	41	91
Limits:	56-120	62-121	56-119	10-72	17-103	36-140

Analysis Name: Method 625
Batch number: 12025WAE625

	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14	Phenol-d6	2-Fluorophenol	2,4,6-Tribromophenol
6526806 RE	98	98	85	42	69	119
6526807 RE	105	99	88	1*	1*	49
Blank	93	96	86	43	58	100
LCS	100	95	96	54	67	99
MS	102	98	99	42	59	97
MSD	101	90	95	43	58	90
Limits:	56-120	62-121	56-119	10-72	17-103	36-140

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Analysis Request/ Environmental Services Chain of Custody

Lancaster Laboratories

For Lancaster Laboratories use only

Acct. # 11372 Group# 1285786 Sample # 6526799-807 **COC #** 277854

Please print. Instructions on reverse side correspond with circled numbers.

For Lab Use Only
FSC:
SCR#: 116276

(1)
Client: CH2M HILL Acct. #:
Project Name/#: Dow Hanging Rock /420671 PWSID #:
Project Manager: Mark Holland /CH2M HILL P.O.#:
Sampler: Brian Wachter /CH2M HILL Quote #:
Name of state where samples were collected: Ohio

(5) Analyses Requested — Preservation Codes

Preservation Codes: H=HCl, T=Thiosulfate, N=HNO_3, B=NaOH, S=H_2SO_4, O=Other

(2) Sample Identification	Date Collected	Time Collected	(3) Grab	Composite	Matrix: Soil	Matrix: Water (☐ Potable ☐ NPDES)	Matrix: Other	(4) Total # of Containers	VOCs	Total cyanide	BOD, Total Suspended Solids	HEM (oil & grease)	Chromium	Metals (Copper, Lead, Nickel, Zinc, Cadmium, Mercury)	EPA 624 Water	Method 625	TOC	Remarks (6) Temperature of samples upon receipt (if requested)
HGR-011812-TB02	01/18/12	1720	X			X		2	X									
HGR-011812-FD01	01/18/12	—	X			X		3	X									only analyze VOCs
WW2-0000-011812	01/18/12	1600	X			X		3	X									only analyze VOCs
WW5-0000-011812	01/18/12	1310	X			X		3	X									only analyze VOCs
WW5-0000-011812 MS	01/18/12	1310	X			X		3	X									Only analyze VOCs
WW5-0000-011812 MSD	01/18/12	1310	X			X		3	X									Only analyze VOCs
SG-0000-011812	01/18/12	1430	X			X		3	X									Only analyze VOCs
HGR-IDW-W2	01/18/12	1450		X		X		13	X	X	X	X	X	X	X	X	X	
HGR-IDW-W3	01/18/12	1510		X		X		13		X	X	X	X	X	X	X	X	

[signature] 01/18/12

(7) **Turnaround Time Requested** (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed:
Rush results requested by (please circle): Phone Fax E-mail
Phone #: Fax #:
E-mail address:

(8) **Data Package Options** (please circle if required)
Type I (validation/NJ Reg) TX TRRP-13
Type II (Tier II) MA MCP CT RCP
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)

SDG Complete? Yes No

Site-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate volume.)
Internal COC Required? Yes / No

(9)

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	1-12-12	1400			
[signature]	01/18/12	1730			
			[signature]	1-19-12	945

Lancaster Laboratories, Inc., 2425 New Holland Pike, Lancaster, PA 17601 (717) 656-2300 Fax: (717) 656-6766
Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client.

Issued by Dept. 6042 Management
2102.05

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

J estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike sample not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*****	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as “analyze immediately” are not performed within 15 minutes.

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Lancaster Laboratories

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Analysis Report

REVISED

ANALYTICAL RESULTS

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425

Prepared for:

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

December 23, 2011

Project: Dow Hanging Rock, OH

Submittal Date: 12/08/2011
Group Number: 1280063
SDG: DHR03
PO Number: 420671-04
Release Number: DHR03
State of Sample Origin: OH

Client Sample Description	Lancaster Labs (LLI) #
S25-SS03-0810-120711 Composite Soil Sample	6493529
S25-SS01-0002-120711 Composite Soil Sample	6493530
S25-SS01-0305-120711 Composite Soil Sample	6493531
S25-SS01-0305-120711MS Matrix Spike Composite	6493532
S25-SS01-0305-120711MSD Matrix Spike Dup Composite	6493533
S25-SS01-0305-120711 Duplicate Composite Soil	6493534
S25-SS01-0810-120711 Composite Soil Sample	6493535
S25-SS03-0002-120711 Composite Soil Sample	6493536
S25-SS03-0305-120711 Composite Soil Sample	6493537
S24-SS03-0810-120711 Composite Soil Sample	6493538
120711_TB Water Sample	6493539
HGR-120711_EB01 Grab Water Sample	6493540

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Shane Lowe
ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Rachel Grand
1 COPY TO	Data Package Group	

Lancaster Laboratories

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Analysis Report

REVISED

Questions? Contact your Client Services Representative
Wendy A Kozma at (717) 656-2300 Ext. 1522

Respectfully Submitted,

Lawrence M. Taylor
Senior Specialist

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

REVISED

Sample Description: S25-SS03-0810-120711 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6493529
LLI Group # 1280063
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/07/2011 15:05 by OO

Submitted: 12/08/2011 09:50
Reported: 12/23/2011 09:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S3810 SDG#: DHR03-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	50		8	0.91
10949	Benzene	71-43-2	0.7	J	0.6	0.91
10949	Bromobenzene	108-86-1	1	U	1	0.91
10949	Bromochloromethane	74-97-5	1	U	1	0.91
10949	Bromodichloromethane	75-27-4	1	U	1	0.91
10949	Bromoform	75-25-2	1	U	1	0.91
10949	Bromomethane	74-83-9	2	U	2	0.91
10949	2-Butanone	78-93-3	9	J	4	0.91
10949	n-Butylbenzene	104-51-8	1	U	1	0.91
10949	sec-Butylbenzene	135-98-8	13		1	0.91
10949	tert-Butylbenzene	98-06-6	1	U	1	0.91
10949	Carbon Disulfide	75-15-0	1	U	1	0.91
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.91
10949	Chlorobenzene	108-90-7	1	U	1	0.91
10949	Chloroethane	75-00-3	2	U	2	0.91
10949	Chloroform	67-66-3	1	U	1	0.91
10949	Chloromethane	74-87-3	2	U	2	0.91
10949	2-Chlorotoluene	95-49-8	1	U	1	0.91
10949	4-Chlorotoluene	106-43-4	1	U	1	0.91
10949	Cyclohexane	110-82-7	1	U	1	0.91
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.91
10949	Dibromochloromethane	124-48-1	1	U	1	0.91
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.91
10949	Dibromomethane	74-95-3	1	U	1	0.91
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.91
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.91
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.91
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.91
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.91
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.91
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.91
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.91
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.91
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.91
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.91
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.91
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.91
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.91
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.91
10949	Ethylbenzene	100-41-4	730	E	1	0.91
10949	Freon 113	76-13-1	2	U	2	0.91
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.91
10949	2-Hexanone	591-78-6	3	U	3	0.91
10949	Isopropylbenzene	98-82-8	210		1	0.91
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.91
10949	Methyl Acetate	79-20-9	2	U	2	0.91
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.6	U	0.6	0.91
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.91
10949	Methylcyclohexane	108-87-2	1	U	1	0.91
10949	Methylene Chloride	75-09-2	2	U	2	0.91
10949	Naphthalene	91-20-3	8		1	0.91

Sample Description: S25-SS03-0810-120711 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6493529
LLI Group # 1280063
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/07/2011 15:05 by OO

Submitted: 12/08/2011 09:50
Reported: 12/23/2011 09:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S3810 SDG#: DHR03-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	180		1	0.91
10949	Styrene	100-42-5	1	U	1	0.91
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.91
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.91
10949	Tetrachloroethene	127-18-4	4	J	1	0.91
10949	Toluene	108-88-3	1	J	1	0.91
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.91
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.91
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.91
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.91
10949	Trichloroethene	79-01-6	1	U	1	0.91
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.91
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.91
10949	1,2,4-Trimethylbenzene	95-63-6	3	J	1	0.91
10949	1,3,5-Trimethylbenzene	108-67-8	170		1	0.91
10949	Vinyl Acetate	108-05-4	2	U	2	0.91
10949	Vinyl Chloride	75-01-4	1	U	1	0.91
10949	m+p-Xylene	179601-23-1	28		1	0.91
10949	o-Xylene	95-47-6	34		1	0.91
Trial ID: DL						
10949	Acetone	67-64-1	340	U	340	39.12
10949	Benzene	71-43-2	24	U	24	39.12
10949	Bromobenzene	108-86-1	48	U	48	39.12
10949	Bromochloromethane	74-97-5	48	U	48	39.12
10949	Bromodichloromethane	75-27-4	48	U	48	39.12
10949	Bromoform	75-25-2	48	U	48	39.12
10949	Bromomethane	74-83-9	96	U	96	39.12
10949	2-Butanone	78-93-3	190	U	190	39.12
10949	n-Butylbenzene	104-51-8	48	U	48	39.12
10949	sec-Butylbenzene	135-98-8	120	J	48	39.12
10949	tert-Butylbenzene	98-06-6	48	U	48	39.12
10949	Carbon Disulfide	75-15-0	48	U	48	39.12
10949	Carbon Tetrachloride	56-23-5	48	U	48	39.12
10949	Chlorobenzene	108-90-7	48	U	48	39.12
10949	Chloroethane	75-00-3	96	U	96	39.12
10949	Chloroform	67-66-3	48	U	48	39.12
10949	Chloromethane	74-87-3	96	U	96	39.12
10949	2-Chlorotoluene	95-49-8	48	U	48	39.12
10949	4-Chlorotoluene	106-43-4	48	U	48	39.12
10949	Cyclohexane	110-82-7	48	U	48	39.12
10949	1,2-Dibromo-3-chloropropane	96-12-8	96	U	96	39.12
10949	Dibromochloromethane	124-48-1	48	U	48	39.12
10949	1,2-Dibromoethane	106-93-4	48	U	48	39.12
10949	Dibromomethane	74-95-3	48	U	48	39.12
10949	1,2-Dichlorobenzene	95-50-1	48	U	48	39.12
10949	1,3-Dichlorobenzene	541-73-1	48	U	48	39.12
10949	1,4-Dichlorobenzene	106-46-7	48	U	48	39.12
10949	Dichlorodifluoromethane	75-71-8	96	U	96	39.12
10949	1,1-Dichloroethane	75-34-3	48	U	48	39.12
10949	1,2-Dichloroethane	107-06-2	48	U	48	39.12

Sample Description: S25-SS03-0810-120711 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6493529
LLI Group # 1280063
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/07/2011 15:05 by OO

Submitted: 12/08/2011 09:50
Reported: 12/23/2011 09:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S3810 SDG#: DHR03-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	1,1-Dichloroethene	75-35-4	48	U	48	39.12
10949	cis-1,2-Dichloroethene	156-59-2	48	U	48	39.12
10949	trans-1,2-Dichloroethene	156-60-5	48	U	48	39.12
10949	1,2-Dichloropropane	78-87-5	48	U	48	39.12
10949	1,3-Dichloropropane	142-28-9	48	U	48	39.12
10949	2,2-Dichloropropane	594-20-7	48	U	48	39.12
10949	1,1-Dichloropropene	563-58-6	48	U	48	39.12
10949	cis-1,3-Dichloropropene	10061-01-5	48	U	48	39.12
10949	trans-1,3-Dichloropropene	10061-02-6	48	U	48	39.12
10949	Ethylbenzene	100-41-4	3,700		48	39.12
10949	Freon 113	76-13-1	96	U	96	39.12
10949	Hexachlorobutadiene	87-68-3	96	U	96	39.12
10949	2-Hexanone	591-78-6	140	U	140	39.12
10949	Isopropylbenzene	98-82-8	1,200		48	39.12
10949	p-Isopropyltoluene	99-87-6	48	U	48	39.12
10949	Methyl Acetate	79-20-9	96	U	96	39.12
10949	Methyl Tertiary Butyl Ether	1634-04-4	24	U	24	39.12
10949	4-Methyl-2-pentanone	108-10-1	140	U	140	39.12
10949	Methylcyclohexane	108-87-2	48	U	48	39.12
10949	Methylene Chloride	75-09-2	96	U	96	39.12
10949	Naphthalene	91-20-3	48	U	48	39.12
10949	n-Propylbenzene	103-65-1	1,100		48	39.12
10949	Styrene	100-42-5	48	U	48	39.12
10949	1,1,1,2-Tetrachloroethane	630-20-6	48	U	48	39.12
10949	1,1,2,2-Tetrachloroethane	79-34-5	48	U	48	39.12
10949	Tetrachloroethene	127-18-4	48	U	48	39.12
10949	Toluene	108-88-3	48	U	48	39.12
10949	1,2,3-Trichlorobenzene	87-61-6	48	U	48	39.12
10949	1,2,4-Trichlorobenzene	120-82-1	48	U	48	39.12
10949	1,1,1-Trichloroethane	71-55-6	48	U	48	39.12
10949	1,1,2-Trichloroethane	79-00-5	48	U	48	39.12
10949	Trichloroethene	79-01-6	48	U	48	39.12
10949	Trichlorofluoromethane	75-69-4	96	U	96	39.12
10949	1,2,3-Trichloropropane	96-18-4	48	U	48	39.12
10949	1,2,4-Trimethylbenzene	95-63-6	48	U	48	39.12
10949	1,3,5-Trimethylbenzene	108-67-8	1,000		48	39.12
10949	Vinyl Chloride	75-01-4	48	U	48	39.12
10949	m+p-Xylene	179601-23-1	140	J	48	39.12
10949	o-Xylene	95-47-6	120	J	48	39.12
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	9	J	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	22,000	E	20	1

Sample Description: S25-SS03-0810-120711 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6493529
LLI Group # 1280063
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/07/2011 15:05 by OO

Submitted: 12/08/2011 09:50
Reported: 12/23/2011 09:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S3810 SDG#: DHR03-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C			**ug/kg**		**ug/kg**	
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	82	U	82	1
10727	Di-n-butylphthalate	84-74-2	82	U	82	1
10727	Carbazole	86-74-8	20	U	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	130		20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1
10727	Diethylphthalate	84-66-2	82	U	82	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	82	U	82	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1
10727	2,4-Dinitrophenol	51-28-5	410	U	410	1
10727	2,4-Dinitrotoluene	121-14-2	82	U	82	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	150	J	82	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	41	U	41	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	6	J	4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	82	U	82	1
10727	4-Nitroaniline	100-01-6	82	U	82	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	82	U	82	1
10727	Pentachlorophenol	87-86-5	41	U	41	1

Sample Description: S25-SS03-0810-120711 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6493529
LLI Group # 1280063
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/07/2011 15:05 by OO

Submitted: 12/08/2011 09:50
Reported: 12/23/2011 09:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S3810 SDG#: DHR03-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Phenanthrene	85-01-8	14	J	4	1
10727	Phenol	108-95-2	20	U	20	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
Trial ID: DL						
10727	Acenaphthene	83-32-9	41	U	41	10
10727	Acenaphthylene	208-96-8	41	U	41	10
10727	Anthracene	120-12-7	41	U	41	10
10727	Benzo(a)anthracene	56-55-3	41	U	41	10
10727	Benzo(a)pyrene	50-32-8	41	U	41	10
10727	Benzo(b)fluoranthene	205-99-2	41	U	41	10
10727	Benzo(g,h,i)perylene	191-24-2	41	U	41	10
10727	Benzo(k)fluoranthene	207-08-9	41	U	41	10
10727	Benzyl alcohol	100-51-6	2,000	U	2,000	10
10727	1,1'-Biphenyl	92-52-4	28,000		200	10
10727	4-Bromophenyl-phenylether	101-55-3	200	U	200	10
10727	Butylbenzylphthalate	85-68-7	820	U	820	10
10727	Di-n-butylphthalate	84-74-2	820	U	820	10
10727	Carbazole	86-74-8	200	U	200	10
10727	4-Chloro-3-methylphenol	59-50-7	200	U	200	10
10727	4-Chloroaniline	106-47-8	200	U	200	10
10727	bis(2-Chloroethoxy)methane	111-91-1	200	U	200	10
10727	bis(2-Chloroethyl)ether	111-44-4	200	U	200	10
10727	2-Chloronaphthalene	91-58-7	86	U	86	10
10727	2-Chlorophenol	95-57-8	200	U	200	10
10727	4-Chlorophenyl-phenylether	7005-72-3	200	U	200	10
10727	Chrysene	218-01-9	41	U	41	10
10727	Dibenz(a,h)anthracene	53-70-3	41	U	41	10
10727	Dibenzofuran	132-64-9	200	U	200	10
10727	3,3'-Dichlorobenzidine	91-94-1	1,200	U	1,200	10
10727	2,4-Dichlorophenol	120-83-2	200	U	200	10
10727	Diethylphthalate	84-66-2	820	U	820	10
10727	2,4-Dimethylphenol	105-67-9	200	U	200	10
10727	Dimethylphthalate	131-11-3	820	U	820	10
10727	4,6-Dinitro-2-methylphenol	534-52-1	2,000	U	2,000	10
10727	2,4-Dinitrophenol	51-28-5	4,100	U	4,100	10
10727	2,4-Dinitrotoluene	121-14-2	820	U	820	10
10727	2,6-Dinitrotoluene	606-20-2	200	U	200	10
10727	1,4-Dioxane	123-91-1	1,200	U	1,200	10
10727	bis(2-Ethylhexyl)phthalate	117-81-7	820	U	820	10
10727	Fluoranthene	206-44-0	41	U	41	10
10727	Fluorene	86-73-7	41	U	41	10
10727	Hexachlorobenzene	118-74-1	41	U	41	10
10727	Hexachlorocyclopentadiene	77-47-4	2,000	U	2,000	10
10727	Hexachloroethane	67-72-1	410	U	410	10
10727	Indeno(1,2,3-cd)pyrene	193-39-5	41	U	41	10
10727	Isophorone	78-59-1	200	U	200	10
10727	2-Methylnaphthalene	91-57-6	41	U	41	10
10727	2-Methylphenol	95-48-7	200	U	200	10

Sample Description: S25-SS03-0810-120711 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6493529
LLI Group # 1280063
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/07/2011 15:05 by OO

Submitted: 12/08/2011 09:50
Reported: 12/23/2011 09:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S3810 SDG#: DHR03-01

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	4-Methylphenol	106-44-5	200	U	200	10
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	200	U	200	10
10727	3-Nitroaniline	99-09-2	820	U	820	10
10727	4-Nitroaniline	100-01-6	820	U	820	10
10727	Nitrobenzene	98-95-3	200	U	200	10
10727	2-Nitrophenol	88-75-5	200	U	200	10
10727	4-Nitrophenol	100-02-7	2,000	U	2,000	10
10727	N-Nitroso-di-n-propylamine	621-64-7	200	U	200	10
10727	N-Nitrosodiphenylamine	86-30-6	200	U	200	10
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	820	U	820	10
10727	Pentachlorophenol	87-86-5	410	U	410	10
10727	Phenanthrene	85-01-8	41	U	41	10
10727	Phenol	108-95-2	200	U	200	10
10727	Pyrene	129-00-0	41	U	41	10
10727	2,4,5-Trichlorophenol	95-95-4	200	U	200	10
10727	2,4,6-Trichlorophenol	88-06-2	200	U	200	10
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	80.6		0.0217	1
06949	Cadmium	7440-43-9	1.32		0.0241	1
06951	Chromium	7440-47-3	18.5		0.168	1
06955	Lead	7439-92-1	7.57		0.265	1
06936	Selenium	7782-49-2	0.893	J	0.818	1
06966	Silver	7440-22-4	0.0998	U	0.0998	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	13.5		0.0962	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0245	J	0.0083	1
Wet Chemistry	**SM20 2540 G**		**%**		**%**	
00111	Moisture	n.a.	18.5		0.50	1
	"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.					

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Lancaster Laboratories

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Analysis Report

Sample Description: S25-SS03-0810-120711 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6493529
LLI Group # 1280063
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/07/2011 15:05 by OO

Submitted: 12/08/2011 09:50
Reported: 12/23/2011 09:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S3810 SDG#: DHR03-01

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113461AA	12/12/2011 15:56	Emily R Styer	0.91
10949	8260 Ext. Soil Master	SW-846 8260B	2	R113491AA	12/15/2011 05:17	Stephanie A Selis	39.12
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134226391	12/08/2011 14:01	Christopher D Meeks	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134226391	12/08/2011 14:01	Christopher D Meeks	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134226391	12/08/2011 14:00	Christopher D Meeks	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11344SLD026	12/13/2011 05:06	Jennifer R Riggs	1
10727	TCL 8270 (microwave)	SW-846 8270C	2	11344SLD026	12/13/2011 20:26	Jennifer R Riggs	10
10809	BNA Soil Microwave	SW-846 3546	1	11344SLD026	12/12/2011 12:30	Olivia I Santiago	1
06946	Barium	SW-846 6010B	1	113435708002	12/12/2011 13:36	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113435708002	12/12/2011 13:36	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113435708002	12/12/2011 13:36	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113435708002	12/12/2011 13:36	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113435708002	12/15/2011 10:45	Joanne M Gates	1
06966	Silver	SW-846 6010B	1	113435708002	12/12/2011 13:36	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113431026002A	12/14/2011 11:03	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113435711002	12/12/2011 08:33	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113435708002	12/11/2011 20:43	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113431026002	12/11/2011 20:45	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113435711002	12/11/2011 23:10	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11343820002B	12/09/2011 21:40	Scott W Freisher	1

Lancaster Laboratories

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Analysis Report

REVISED

Sample Description: S25-SS01-0002-120711 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6493530
LLI Group # 1280063
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/07/2011 15:50 by OO

Submitted: 12/08/2011 09:50
Reported: 12/23/2011 09:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S1002 SDG#: DHR03-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	14	J	7	0.88
10949	Benzene	71-43-2	4	J	0.5	0.88
10949	Bromobenzene	108-86-1	0.9	U	0.9	0.88
10949	Bromochloromethane	74-97-5	0.9	U	0.9	0.88
10949	Bromodichloromethane	75-27-4	0.9	U	0.9	0.88
10949	Bromoform	75-25-2	0.9	U	0.9	0.88
10949	Bromomethane	74-83-9	2	U	2	0.88
10949	2-Butanone	78-93-3	4	U	4	0.88
10949	n-Butylbenzene	104-51-8	0.9	U	0.9	0.88
10949	sec-Butylbenzene	135-98-8	0.9	U	0.9	0.88
10949	tert-Butylbenzene	98-06-6	0.9	U	0.9	0.88
10949	Carbon Disulfide	75-15-0	6		0.9	0.88
10949	Carbon Tetrachloride	56-23-5	0.9	U	0.9	0.88
10949	Chlorobenzene	108-90-7	0.9	U	0.9	0.88
10949	Chloroethane	75-00-3	2	U	2	0.88
10949	Chloroform	67-66-3	0.9	U	0.9	0.88
10949	Chloromethane	74-87-3	2	U	2	0.88
10949	2-Chlorotoluene	95-49-8	0.9	U	0.9	0.88
10949	4-Chlorotoluene	106-43-4	0.9	U	0.9	0.88
10949	Cyclohexane	110-82-7	8		0.9	0.88
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.88
10949	Dibromochloromethane	124-48-1	0.9	U	0.9	0.88
10949	1,2-Dibromoethane	106-93-4	0.9	U	0.9	0.88
10949	Dibromomethane	74-95-3	0.9	U	0.9	0.88
10949	1,2-Dichlorobenzene	95-50-1	0.9	U	0.9	0.88
10949	1,3-Dichlorobenzene	541-73-1	0.9	U	0.9	0.88
10949	1,4-Dichlorobenzene	106-46-7	0.9	U	0.9	0.88
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.88
10949	1,1-Dichloroethane	75-34-3	0.9	U	0.9	0.88
10949	1,2-Dichloroethane	107-06-2	0.9	U	0.9	0.88
10949	1,1-Dichloroethene	75-35-4	0.9	U	0.9	0.88
10949	cis-1,2-Dichloroethene	156-59-2	0.9	U	0.9	0.88
10949	trans-1,2-Dichloroethene	156-60-5	0.9	U	0.9	0.88
10949	1,2-Dichloropropane	78-87-5	0.9	U	0.9	0.88
10949	1,3-Dichloropropane	142-28-9	0.9	U	0.9	0.88
10949	2,2-Dichloropropane	594-20-7	0.9	U	0.9	0.88
10949	1,1-Dichloropropene	563-58-6	0.9	U	0.9	0.88
10949	cis-1,3-Dichloropropene	10061-01-5	0.9	U	0.9	0.88
10949	trans-1,3-Dichloropropene	10061-02-6	0.9	U	0.9	0.88
10949	Ethylbenzene	100-41-4	3	J	0.9	0.88
10949	Freon 113	76-13-1	2	U	2	0.88
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.88
10949	2-Hexanone	591-78-6	3	U	3	0.88
10949	Isopropylbenzene	98-82-8	0.9	U	0.9	0.88
10949	p-Isopropyltoluene	99-87-6	0.9	U	0.9	0.88
10949	Methyl Acetate	79-20-9	2	U	2	0.88
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.88
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.88
10949	Methylcyclohexane	108-87-2	12		0.9	0.88
10949	Methylene Chloride	75-09-2	2	U	2	0.88
10949	Naphthalene	91-20-3	0.9	U	0.9	0.88

Sample Description: S25-SS01-0002-120711 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6493530
LLI Group # 1280063
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/07/2011 15:50 by OO

Submitted: 12/08/2011 09:50
Reported: 12/23/2011 09:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S1002 SDG#: DHR03-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	0.9	U	0.9	0.88
10949	Styrene	100-42-5	0.9	U	0.9	0.88
10949	1,1,1,2-Tetrachloroethane	630-20-6	0.9	U	0.9	0.88
10949	1,1,2,2-Tetrachloroethane	79-34-5	0.9	U	0.9	0.88
10949	Tetrachloroethene	127-18-4	0.9	U	0.9	0.88
10949	Toluene	108-88-3	8		0.9	0.88
10949	1,2,3-Trichlorobenzene	87-61-6	0.9	U	0.9	0.88
10949	1,2,4-Trichlorobenzene	120-82-1	0.9	U	0.9	0.88
10949	1,1,1-Trichloroethane	71-55-6	0.9	U	0.9	0.88
10949	1,1,2-Trichloroethane	79-00-5	0.9	U	0.9	0.88
10949	Trichloroethene	79-01-6	0.9	U	0.9	0.88
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.88
10949	1,2,3-Trichloropropane	96-18-4	0.9	U	0.9	0.88
10949	1,2,4-Trimethylbenzene	95-63-6	2	J	0.9	0.88
10949	1,3,5-Trimethylbenzene	108-67-8	0.9	U	0.9	0.88
10949	Vinyl Acetate	108-05-4	2	U	2	0.88
10949	Vinyl Chloride	75-01-4	0.9	U	0.9	0.88
10949	m+p-Xylene	179601-23-1	3	J	0.9	0.88
10949	o-Xylene	95-47-6	1	J	0.9	0.88
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	18	U	18	5
10727	Acenaphthylene	208-96-8	18	U	18	5
10727	Anthracene	120-12-7	18	U	18	5
10727	Benzo(a)anthracene	56-55-3	18	U	18	5
10727	Benzo(a)pyrene	50-32-8	18	U	18	5
10727	Benzo(b)fluoranthene	205-99-2	18	U	18	5
10727	Benzo(g,h,i)perylene	191-24-2	18	U	18	5
10727	Benzo(k)fluoranthene	207-08-9	18	U	18	5
10727	Benzyl alcohol	100-51-6	890	U	890	5
10727	1,1'-Biphenyl	92-52-4	89	U	89	5
10727	4-Bromophenyl-phenylether	101-55-3	89	U	89	5
10727	Butylbenzylphthalate	85-68-7	360	U	360	5
10727	Di-n-butylphthalate	84-74-2	360	U	360	5
10727	Carbazole	86-74-8	89	U	89	5
10727	4-Chloro-3-methylphenol	59-50-7	89	U	89	5
10727	4-Chloroaniline	106-47-8	89	U	89	5
10727	bis(2-Chloroethoxy)methane	111-91-1	89	U	89	5
10727	bis(2-Chloroethyl)ether	111-44-4	89	U	89	5
10727	2-Chloronaphthalene	91-58-7	37	U	37	5
10727	2-Chlorophenol	95-57-8	89	U	89	5
10727	4-Chlorophenyl-phenylether	7005-72-3	89	U	89	5
10727	Chrysene	218-01-9	18	U	18	5
10727	Dibenz(a,h)anthracene	53-70-3	18	U	18	5
10727	Dibenzofuran	132-64-9	89	U	89	5
10727	3,3'-Dichlorobenzidine	91-94-1	530	U	530	5
10727	2,4-Dichlorophenol	120-83-2	89	U	89	5
10727	Diethylphthalate	84-66-2	360	U	360	5
10727	2,4-Dimethylphenol	105-67-9	89	U	89	5
10727	Dimethylphthalate	131-11-3	360	U	360	5
10727	4,6-Dinitro-2-methylphenol	534-52-1	890	U	890	5

Sample Description: S25-SS01-0002-120711 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6493530
LLI Group # 1280063
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/07/2011 15:50 by OO

Submitted: 12/08/2011 09:50
Reported: 12/23/2011 09:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S1002 SDG#: DHR03-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	1,800	U	1,800	5
10727	2,4-Dinitrotoluene	121-14-2	360	U	360	5
10727	2,6-Dinitrotoluene	606-20-2	89	U	89	5
10727	1,4-Dioxane	123-91-1	530	U	530	5
10727	bis(2-Ethylhexyl)phthalate	117-81-7	360	U	360	5
10727	Fluoranthene	206-44-0	18	U	18	5
10727	Fluorene	86-73-7	18	U	18	5
10727	Hexachlorobenzene	118-74-1	18	U	18	5
10727	Hexachlorocyclopentadiene	77-47-4	890	U	890	5
10727	Hexachloroethane	67-72-1	180	U	180	5
10727	Indeno(1,2,3-cd)pyrene	193-39-5	18	U	18	5
10727	Isophorone	78-59-1	89	U	89	5
10727	2-Methylnaphthalene	91-57-6	34	J	18	5
10727	2-Methylphenol	95-48-7	89	U	89	5
10727	4-Methylphenol	106-44-5	89	U	89	5
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	89	U	89	5
10727	3-Nitroaniline	99-09-2	360	U	360	5
10727	4-Nitroaniline	100-01-6	360	U	360	5
10727	Nitrobenzene	98-95-3	89	U	89	5
10727	2-Nitrophenol	88-75-5	89	U	89	5
10727	4-Nitrophenol	100-02-7	890	U	890	5
10727	N-Nitroso-di-n-propylamine	621-64-7	89	U	89	5
10727	N-Nitrosodiphenylamine	86-30-6	89	U	89	5
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	360	U	360	5
10727	Pentachlorophenol	87-86-5	180	U	180	5
10727	Phenanthrene	85-01-8	33	J	18	5
10727	Phenol	108-95-2	89	U	89	5
10727	Pyrene	129-00-0	23	J	18	5
10727	2,4,5-Trichlorophenol	95-95-4	89	U	89	5
10727	2,4,6-Trichlorophenol	88-06-2	89	U	89	5
Reporting limits were raised due to interference from the sample matrix.						
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	53.5		0.0193	1
06949	Cadmium	7440-43-9	0.867		0.0214	1
06951	Chromium	7440-47-3	10.7		0.150	1
06955	Lead	7439-92-1	10.3		0.235	1
06936	Selenium	7782-49-2	1.82	J	0.727	1
06966	Silver	7440-22-4	0.0888	U	0.0888	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	11.0		0.0847	2
	SW-846 7471A		**mg/kg**		**mg/kg**	

Lancaster Laboratories

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Analysis Report

Sample Description: S25-SS01-0002-120711 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6493530
LLI Group # 1280063
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/07/2011 15:50 by OO

Submitted: 12/08/2011 09:50
Reported: 12/23/2011 09:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S1002 SDG#: DHR03-02

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals		**SW-846 7471A**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0206 J	0.0071	1
Wet Chemistry		**SM20 2540 G**	**%**	**%**	
00111	Moisture	n.a.	6.5	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113461AA	12/12/2011 22:23	Emily R Styer	0.88
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134226391	12/08/2011 14:03	Christopher D Meeks	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134226391	12/08/2011 14:04	Christopher D Meeks	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134226391	12/08/2011 14:03	Christopher D Meeks	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11344SLD026	12/13/2011 05:30	Jennifer R Riggs	5
10809	BNA Soil Microwave	SW-846 3546	1	11344SLD026	12/12/2011 12:30	Olivia I Santiago	1
06946	Barium	SW-846 6010B	1	113435708002	12/12/2011 13:40	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113435708002	12/12/2011 13:40	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113435708002	12/12/2011 13:40	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113435708002	12/16/2011 10:17	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113435708002	12/15/2011 10:49	Joanne M Gates	1
06966	Silver	SW-846 6010B	1	113435708002	12/12/2011 13:40	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113431026002A	12/14/2011 11:05	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113435711002	12/12/2011 08:35	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113435708002	12/11/2011 20:43	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113431026002	12/11/2011 20:45	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113435711002	12/11/2011 23:10	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11343820002B	12/09/2011 21:40	Scott W Freisher	1

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Analysis Report

REVISED

Sample Description: S25-SS01-0305-120711 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6493531
LLI Group # 1280063
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/07/2011 15:55 by OO

Submitted: 12/08/2011 09:50
Reported: 12/23/2011 09:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S1305 SDG#: DHR03-03BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	24		8	0.92
10949	Benzene	71-43-2	0.6	U	0.6	0.92
10949	Bromobenzene	108-86-1	1	U	1	0.92
10949	Bromochloromethane	74-97-5	1	U	1	0.92
10949	Bromodichloromethane	75-27-4	1	U	1	0.92
10949	Bromoform	75-25-2	1	U	1	0.92
10949	Bromomethane	74-83-9	2	U	2	0.92
10949	2-Butanone	78-93-3	4	U	4	0.92
10949	n-Butylbenzene	104-51-8	1	U	1	0.92
10949	sec-Butylbenzene	135-98-8	1	U	1	0.92
10949	tert-Butylbenzene	98-06-6	1	U	1	0.92
10949	Carbon Disulfide	75-15-0	1	U	1	0.92
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.92
10949	Chlorobenzene	108-90-7	1	U	1	0.92
10949	Chloroethane	75-00-3	2	U	2	0.92
10949	Chloroform	67-66-3	1	U	1	0.92
10949	Chloromethane	74-87-3	2	U	2	0.92
10949	2-Chlorotoluene	95-49-8	1	U	1	0.92
10949	4-Chlorotoluene	106-43-4	1	U	1	0.92
10949	Cyclohexane	110-82-7	1	U	1	0.92
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.92
10949	Dibromochloromethane	124-48-1	1	U	1	0.92
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.92
10949	Dibromomethane	74-95-3	1	U	1	0.92
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.92
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.92
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.92
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.92
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.92
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.92
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.92
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.92
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.92
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.92
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.92
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.92
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.92
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.92
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.92
10949	Ethylbenzene	100-41-4	1	U	1	0.92
10949	Freon 113	76-13-1	2	U	2	0.92
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.92
10949	2-Hexanone	591-78-6	3	U	3	0.92
10949	Isopropylbenzene	98-82-8	1	U	1	0.92
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.92
10949	Methyl Acetate	79-20-9	2	U	2	0.92
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.6	U	0.6	0.92
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.92
10949	Methylcyclohexane	108-87-2	1	U	1	0.92
10949	Methylene Chloride	75-09-2	2	U	2	0.92
10949	Naphthalene	91-20-3	1	U	1	0.92

Sample Description: S25-SS01-0305-120711 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6493531
LLI Group # 1280063
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/07/2011 15:55 by OO

Submitted: 12/08/2011 09:50
Reported: 12/23/2011 09:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S1305 SDG#: DHR03-03BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.92
10949	Styrene	100-42-5	1	U	1	0.92
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.92
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.92
10949	Tetrachloroethene	127-18-4	1	U	1	0.92
10949	Toluene	108-88-3	1	U	1	0.92
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.92
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.92
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.92
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.92
10949	Trichloroethene	79-01-6	1	U	1	0.92
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.92
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.92
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.92
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.92
10949	Vinyl Acetate	108-05-4	2	U	2	0.92
10949	Vinyl Chloride	75-01-4	1	U	1	0.92
10949	m+p-Xylene	179601-23-1	1	U	1	0.92
10949	o-Xylene	95-47-6	1	U	1	0.92
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	20	U	20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	81	U	81	1
10727	Di-n-butylphthalate	84-74-2	81	U	81	1
10727	Carbazole	86-74-8	20	U	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	20	U	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1
10727	Diethylphthalate	84-66-2	81	U	81	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	81	U	81	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1

Sample Description: S25-SS01-0305-120711 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6493531
LLI Group # 1280063
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/07/2011 15:55 by OO

Submitted: 12/08/2011 09:50
Reported: 12/23/2011 09:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S1305 SDG#: DHR03-03BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	410	U	410	1
10727	2,4-Dinitrotoluene	121-14-2	81	U	81	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	81	U	81	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	41	U	41	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	81	U	81	1
10727	4-Nitroaniline	100-01-6	81	U	81	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	81	U	81	1
10727	Pentachlorophenol	87-86-5	41	U	41	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	20	U	20	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	183		0.0217	1
06949	Cadmium	7440-43-9	1.51		0.0241	1
06951	Chromium	7440-47-3	21.2		0.169	1
06955	Lead	7439-92-1	10.1		0.266	1
06936	Selenium	7782-49-2	1.19	J	0.821	1
06966	Silver	7440-22-4	0.100	U	0.100	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	16.0		0.0938	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0311	J	0.0084	1

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Analysis Report

Sample Description: S25-SS01-0305-120711 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6493531
LLI Group # 1280063
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/07/2011 15:55 by OO

Submitted: 12/08/2011 09:50
Reported: 12/23/2011 09:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S1305 SDG#: DHR03-03BKG

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	18.0	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113461AA	12/12/2011 16:41	Emily R Styer	0.92
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134226391	12/08/2011 14:06	Christopher D Meeks	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134226391	12/08/2011 14:06	Christopher D Meeks	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134226391	12/08/2011 14:05	Christopher D Meeks	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11344SLD026	12/13/2011 02:44	Jennifer R Riggs	1
10809	BNA Soil Microwave	SW-846 3546	1	11344SLD026	12/12/2011 12:30	Olivia I Santiago	1
06946	Barium	SW-846 6010B	1	113435708002	12/12/2011 12:52	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113435708002	12/12/2011 12:52	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113435708002	12/12/2011 12:52	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113435708002	12/12/2011 12:52	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113435708002	12/15/2011 09:55	Joanne M Gates	1
06966	Silver	SW-846 6010B	1	113435708002	12/12/2011 12:52	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113431026002A	12/14/2011 10:50	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113435711002	12/12/2011 08:36	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113435708002	12/11/2011 20:43	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113431026002	12/11/2011 20:45	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113435711002	12/11/2011 23:10	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11343820002B	12/09/2011 21:40	Scott W Freisher	1

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Analysis Report

REVISED

Sample Description: S25-SS01-0305-120711MS Matrix Spike Composite
Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6493532
LLI Group # 1280063
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/07/2011 15:55 by OO

Submitted: 12/08/2011 09:50
Reported: 12/23/2011 09:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S1305 SDG#: DHR03-03MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg	ug/kg	
10949	Acetone	67-64-1	240	7	0.88
10949	Benzene	71-43-2	22	0.5	0.88
10949	Bromobenzene	108-86-1	24	1	0.88
10949	Bromochloromethane	74-97-5	24	1	0.88
10949	Bromodichloromethane	75-27-4	22	1	0.88
10949	Bromoform	75-25-2	24	1	0.88
10949	Bromomethane	74-83-9	24	2	0.88
10949	2-Butanone	78-93-3	210	4	0.88
10949	n-Butylbenzene	104-51-8	21	1	0.88
10949	sec-Butylbenzene	135-98-8	24	1	0.88
10949	tert-Butylbenzene	98-06-6	24	1	0.88
10949	Carbon Disulfide	75-15-0	20	1	0.88
10949	Carbon Tetrachloride	56-23-5	28	1	0.88
10949	Chlorobenzene	108-90-7	23	1	0.88
10949	Chloroethane	75-00-3	22	2	0.88
10949	Chloroform	67-66-3	24	1	0.88
10949	Chloromethane	74-87-3	20	2	0.88
10949	2-Chlorotoluene	95-49-8	23	1	0.88
10949	4-Chlorotoluene	106-43-4	23	1	0.88
10949	Cyclohexane	110-82-7	22	1	0.88
10949	1,2-Dibromo-3-chloropropane	96-12-8	27	2	0.88
10949	Dibromochloromethane	124-48-1	24	1	0.88
10949	1,2-Dibromoethane	106-93-4	24	1	0.88
10949	Dibromomethane	74-95-3	22	1	0.88
10949	1,2-Dichlorobenzene	95-50-1	23	1	0.88
10949	1,3-Dichlorobenzene	541-73-1	23	1	0.88
10949	1,4-Dichlorobenzene	106-46-7	23	1	0.88
10949	Dichlorodifluoromethane	75-71-8	25	2	0.88
10949	1,1-Dichloroethane	75-34-3	23	1	0.88
10949	1,2-Dichloroethane	107-06-2	27	1	0.88
10949	1,1-Dichloroethene	75-35-4	23	1	0.88
10949	cis-1,2-Dichloroethene	156-59-2	22	1	0.88
10949	trans-1,2-Dichloroethene	156-60-5	23	1	0.88
10949	1,2-Dichloropropane	78-87-5	20	1	0.88
10949	1,3-Dichloropropane	142-28-9	22	1	0.88
10949	2,2-Dichloropropane	594-20-7	25	1	0.88
10949	1,1-Dichloropropene	563-58-6	24	1	0.88
10949	cis-1,3-Dichloropropene	10061-01-5	20	1	0.88
10949	trans-1,3-Dichloropropene	10061-02-6	21	1	0.88
10949	Ethylbenzene	100-41-4	23	1	0.88
10949	Freon 113	76-13-1	25	2	0.88
10949	Hexachlorobutadiene	87-68-3	25	2	0.88
10949	2-Hexanone	591-78-6	120	3	0.88
10949	Isopropylbenzene	98-82-8	25	1	0.88
10949	p-Isopropyltoluene	99-87-6	24	1	0.88
10949	Methyl Acetate	79-20-9	28	2	0.88
10949	Methyl Tertiary Butyl Ether	1634-04-4	23	0.5	0.88
10949	4-Methyl-2-pentanone	108-10-1	130	3	0.88
10949	Methylcyclohexane	108-87-2	24	1	0.88
10949	Methylene Chloride	75-09-2	22	2	0.88

Sample Description: S25-SS01-0305-120711MS Matrix Spike Composite
Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6493532
LLI Group # 1280063
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/07/2011 15:55 by OO

Submitted: 12/08/2011 09:50
Reported: 12/23/2011 09:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S1305 SDG#: DHR03-03MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**	**ug/kg**	
10949	Naphthalene	91-20-3	21	1	0.88
10949	n-Propylbenzene	103-65-1	23	1	0.88
10949	Styrene	100-42-5	7	1	0.88
10949	1,1,1,2-Tetrachloroethane	630-20-6	24	1	0.88
10949	1,1,2,2-Tetrachloroethane	79-34-5	21	1	0.88
10949	Tetrachloroethene	127-18-4	27	1	0.88
10949	Toluene	108-88-3	22	1	0.88
10949	1,2,3-Trichlorobenzene	87-61-6	22	1	0.88
10949	1,2,4-Trichlorobenzene	120-82-1	21	1	0.88
10949	1,1,1-Trichloroethane	71-55-6	27	1	0.88
10949	1,1,2-Trichloroethane	79-00-5	22	1	0.88
10949	Trichloroethene	79-01-6	23	1	0.88
10949	Trichlorofluoromethane	75-69-4	30	2	0.88
10949	1,2,3-Trichloropropane	96-18-4	24	1	0.88
10949	1,2,4-Trimethylbenzene	95-63-6	23	1	0.88
10949	1,3,5-Trimethylbenzene	108-67-8	23	1	0.88
10949	Vinyl Acetate	108-05-4	52	2	0.84
10949	Vinyl Chloride	75-01-4	21	1	0.88
10949	m+p-Xylene	179601-23-1	47	1	0.88
10949	o-Xylene	95-47-6	22	1	0.88
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**	**ug/kg**	
10727	Acenaphthene	83-32-9	1,900	4	1
10727	Acenaphthylene	208-96-8	2,100	4	1
10727	Anthracene	120-12-7	1,900	4	1
10727	Benzo(a)anthracene	56-55-3	1,800	4	1
10727	Benzo(a)pyrene	50-32-8	2,000	4	1
10727	Benzo(b)fluoranthene	205-99-2	2,000	4	1
10727	Benzo(g,h,i)perylene	191-24-2	1,800	4	1
10727	Benzo(k)fluoranthene	207-08-9	2,000	4	1
10727	Benzyl alcohol	100-51-6	1,900	200	1
10727	1,1'-Biphenyl	92-52-4	1,800	20	1
10727	4-Bromophenyl-phenylether	101-55-3	1,900	20	1
10727	Butylbenzylphthalate	85-68-7	1,900	81	1
10727	Di-n-butylphthalate	84-74-2	1,900	81	1
10727	Carbazole	86-74-8	1,800	20	1
10727	4-Chloro-3-methylphenol	59-50-7	1,900	20	1
10727	4-Chloroaniline	106-47-8	1,700	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	1,800	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	1,800	20	1
10727	2-Chloronaphthalene	91-58-7	2,400	9	1
10727	2-Chlorophenol	95-57-8	1,900	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	1,900	20	1
10727	Chrysene	218-01-9	1,800	4	1
10727	Dibenz(a,h)anthracene	53-70-3	1,900	4	1
10727	Dibenzofuran	132-64-9	1,800	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	1,500	120	1
10727	2,4-Dichlorophenol	120-83-2	2,000	20	1
10727	Diethylphthalate	84-66-2	1,900	81	1
10727	2,4-Dimethylphenol	105-67-9	1,800	20	1

Sample Description: S25-SS01-0305-120711MS Matrix Spike Composite
Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6493532
LLI Group # 1280063
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/07/2011 15:55 by OO

Submitted: 12/08/2011 09:50
Reported: 12/23/2011 09:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S1305 SDG#: DHR03-03MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**	**ug/kg**	
10727	Dimethylphthalate	131-11-3	1,900	81	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	1,700	200	1
10727	2,4-Dinitrophenol	51-28-5	2,600	410	1
10727	2,4-Dinitrotoluene	121-14-2	2,000	81	1
10727	2,6-Dinitrotoluene	606-20-2	2,000	20	1
10727	1,4-Dioxane	123-91-1	920	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	1,900	81	1
10727	Fluoranthene	206-44-0	1,900	4	1
10727	Fluorene	86-73-7	1,900	4	1
10727	Hexachlorobenzene	118-74-1	1,900	4	1
10727	Hexachlorocyclopentadiene	77-47-4	3,900	200	1
10727	Hexachloroethane	67-72-1	1,600	41	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	1,800	4	1
10727	Isophorone	78-59-1	1,800	20	1
10727	2-Methylnaphthalene	91-57-6	1,900	4	1
10727	2-Methylphenol	95-48-7	1,900	20	1
10727	4-Methylphenol	106-44-5	1,800	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.				
10727	2-Nitroaniline	88-74-4	2,000	20	1
10727	3-Nitroaniline	99-09-2	1,900	81	1
10727	4-Nitroaniline	100-01-6	1,700	81	1
10727	Nitrobenzene	98-95-3	1,800	20	1
10727	2-Nitrophenol	88-75-5	1,900	20	1
10727	4-Nitrophenol	100-02-7	1,600	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	1,600	20	1
10727	N-Nitrosodiphenylamine	86-30-6	1,900	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.				
10727	Di-n-octylphthalate	117-84-0	2,200	81	1
10727	Pentachlorophenol	87-86-5	1,600	41	1
10727	Phenanthrene	85-01-8	1,800	4	1
10727	Phenol	108-95-2	1,800	20	1
10727	Pyrene	129-00-0	1,800	4	1
10727	2,4,5-Trichlorophenol	95-95-4	2,000	20	1
10727	2,4,6-Trichlorophenol	88-06-2	2,000	20	1
Metals	**SW-846 6010B**		**mg/kg**	**mg/kg**	
06946	Barium	7440-39-3	476	0.0217	1
06949	Cadmium	7440-43-9	7.29	0.0241	1
06951	Chromium	7440-47-3	51.8	0.169	1
06955	Lead	7439-92-1	28.4	0.266	1
06936	Selenium	7782-49-2	17.9	0.821	1
06966	Silver	7440-22-4	6.08	0.100	1
	SW-846 6020		**mg/kg**	**mg/kg**	
06125	Arsenic	7440-38-2	19.7	0.0956	2

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Analysis Report

Sample Description: S25-SS01-0305-120711MS Matrix Spike Composite
Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6493532
LLI Group # 1280063
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/07/2011 15:55 by OO

Submitted: 12/08/2011 09:50
Reported: 12/23/2011 09:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S1305 SDG#: DHR03-03MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.238	0.0084	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00118	Moisture	n.a.	18.0	0.50	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113461AA	12/12/2011 17:05	Emily R Styer	0.88
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113461AA	12/12/2011 17:50	Emily R Styer	0.84
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134226391	12/08/2011 14:08	Christopher D Meeks	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134226391	12/08/2011 14:08	Christopher D Meeks	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134226391	12/08/2011 14:08	Christopher D Meeks	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11344SLD026	12/13/2011 03:07	Jennifer R Riggs	1
10809	BNA Soil Microwave	SW-846 3546	1	11344SLD026	12/12/2011 12:30	Olivia I Santiago	1
06946	Barium	SW-846 6010B	1	113435708002	12/12/2011 13:03	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113435708002	12/12/2011 13:03	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113435708002	12/12/2011 13:03	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113435708002	12/12/2011 13:03	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113435708002	12/15/2011 10:08	Joanne M Gates	1
06966	Silver	SW-846 6010B	1	113435708002	12/12/2011 13:03	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113431026002A	12/14/2011 10:57	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113435711002	12/12/2011 08:39	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113435708002	12/11/2011 20:43	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113431026002	12/11/2011 20:45	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113435711002	12/11/2011 23:10	Annamaria Stipkovits	1
00118	Moisture	SM20 2540 G	1	11343820002B	12/09/2011 21:40	Scott W Freisher	1

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Analysis Report

REVISED

Sample Description: S25-SS01-0305-120711MSD Matrix Spike Dup Composite
Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6493533
LLI Group # 1280063
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/07/2011 15:55 by OO

Submitted: 12/08/2011 09:50
Reported: 12/23/2011 09:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S1305 SDG#: DHR03-03MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg	ug/kg	
10949	Acetone	67-64-1	210	7	0.85
10949	Benzene	71-43-2	20	0.5	0.85
10949	Bromobenzene	108-86-1	22	1	0.85
10949	Bromochloromethane	74-97-5	24	1	0.85
10949	Bromodichloromethane	75-27-4	21	1	0.85
10949	Bromoform	75-25-2	21	1	0.85
10949	Bromomethane	74-83-9	24	2	0.85
10949	2-Butanone	78-93-3	180	4	0.85
10949	n-Butylbenzene	104-51-8	19	1	0.85
10949	sec-Butylbenzene	135-98-8	22	1	0.85
10949	tert-Butylbenzene	98-06-6	22	1	0.85
10949	Carbon Disulfide	75-15-0	19	1	0.85
10949	Carbon Tetrachloride	56-23-5	25	1	0.85
10949	Chlorobenzene	108-90-7	21	1	0.85
10949	Chloroethane	75-00-3	21	2	0.85
10949	Chloroform	67-66-3	22	1	0.85
10949	Chloromethane	74-87-3	20	2	0.85
10949	2-Chlorotoluene	95-49-8	21	1	0.85
10949	4-Chlorotoluene	106-43-4	21	1	0.85
10949	Cyclohexane	110-82-7	21	1	0.85
10949	1,2-Dibromo-3-chloropropane	96-12-8	22	2	0.85
10949	Dibromochloromethane	124-48-1	21	1	0.85
10949	1,2-Dibromoethane	106-93-4	21	1	0.85
10949	Dibromomethane	74-95-3	20	1	0.85
10949	1,2-Dichlorobenzene	95-50-1	20	1	0.85
10949	1,3-Dichlorobenzene	541-73-1	21	1	0.85
10949	1,4-Dichlorobenzene	106-46-7	21	1	0.85
10949	Dichlorodifluoromethane	75-71-8	24	2	0.85
10949	1,1-Dichloroethane	75-34-3	21	1	0.85
10949	1,2-Dichloroethane	107-06-2	24	1	0.85
10949	1,1-Dichloroethene	75-35-4	22	1	0.85
10949	cis-1,2-Dichloroethene	156-59-2	21	1	0.85
10949	trans-1,2-Dichloroethene	156-60-5	21	1	0.85
10949	1,2-Dichloropropane	78-87-5	18	1	0.85
10949	1,3-Dichloropropane	142-28-9	20	1	0.85
10949	2,2-Dichloropropane	594-20-7	23	1	0.85
10949	1,1-Dichloropropene	563-58-6	22	1	0.85
10949	cis-1,3-Dichloropropene	10061-01-5	19	1	0.85
10949	trans-1,3-Dichloropropene	10061-02-6	20	1	0.85
10949	Ethylbenzene	100-41-4	21	1	0.85
10949	Freon 113	76-13-1	23	2	0.85
10949	Hexachlorobutadiene	87-68-3	22	2	0.85
10949	2-Hexanone	591-78-6	100	3	0.85
10949	Isopropylbenzene	98-82-8	22	1	0.85
10949	p-Isopropyltoluene	99-87-6	21	1	0.85
10949	Methyl Acetate	79-20-9	26	2	0.85
10949	Methyl Tertiary Butyl Ether	1634-04-4	21	0.5	0.85
10949	4-Methyl-2-pentanone	108-10-1	120	3	0.85
10949	Methylcyclohexane	108-87-2	24	1	0.85
10949	Methylene Chloride	75-09-2	20	2	0.85

Sample Description: S25-SS01-0305-120711MSD Matrix Spike Dup Composite
Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6493533
LLI Group # 1280063
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/07/2011 15:55 by OO

Submitted: 12/08/2011 09:50
Reported: 12/23/2011 09:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S1305 SDG#: DHR03-03MSD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Naphthalene	91-20-3	16		1	0.85
10949	n-Propylbenzene	103-65-1	21		1	0.85
10949	Styrene	100-42-5	3	J	1	0.85
10949	1,1,1,2-Tetrachloroethane	630-20-6	23		1	0.85
10949	1,1,2,2-Tetrachloroethane	79-34-5	19		1	0.85
10949	Tetrachloroethene	127-18-4	25		1	0.85
10949	Toluene	108-88-3	21		1	0.85
10949	1,2,3-Trichlorobenzene	87-61-6	18		1	0.85
10949	1,2,4-Trichlorobenzene	120-82-1	18		1	0.85
10949	1,1,1-Trichloroethane	71-55-6	25		1	0.85
10949	1,1,2-Trichloroethane	79-00-5	20		1	0.85
10949	Trichloroethene	79-01-6	21		1	0.85
10949	Trichlorofluoromethane	75-69-4	29		2	0.85
10949	1,2,3-Trichloropropane	96-18-4	22		1	0.85
10949	1,2,4-Trimethylbenzene	95-63-6	19		1	0.85
10949	1,3,5-Trimethylbenzene	108-67-8	21		1	0.85
10949	Vinyl Acetate	108-05-4	70		2	0.83
10949	Vinyl Chloride	75-01-4	21		1	0.85
10949	m+p-Xylene	179601-23-1	42		1	0.85
10949	o-Xylene	95-47-6	20		1	0.85
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	1,900		4	1
10727	Acenaphthylene	208-96-8	2,100		4	1
10727	Anthracene	120-12-7	2,000		4	1
10727	Benzo(a)anthracene	56-55-3	1,800		4	1
10727	Benzo(a)pyrene	50-32-8	2,000		4	1
10727	Benzo(b)fluoranthene	205-99-2	2,000		4	1
10727	Benzo(g,h,i)perylene	191-24-2	1,800		4	1
10727	Benzo(k)fluoranthene	207-08-9	2,000		4	1
10727	Benzyl alcohol	100-51-6	2,000		200	1
10727	1,1'-Biphenyl	92-52-4	1,800		20	1
10727	4-Bromophenyl-phenylether	101-55-3	1,900		20	1
10727	Butylbenzylphthalate	85-68-7	1,900		81	1
10727	Di-n-butylphthalate	84-74-2	2,000		81	1
10727	Carbazole	86-74-8	1,900		20	1
10727	4-Chloro-3-methylphenol	59-50-7	2,000		20	1
10727	4-Chloroaniline	106-47-8	1,700		20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	1,900		20	1
10727	bis(2-Chloroethyl)ether	111-44-4	1,800		20	1
10727	2-Chloronaphthalene	91-58-7	2,400		9	1
10727	2-Chlorophenol	95-57-8	2,000		20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	2,000		20	1
10727	Chrysene	218-01-9	1,800		4	1
10727	Dibenz(a,h)anthracene	53-70-3	1,900		4	1
10727	Dibenzofuran	132-64-9	1,900		20	1
10727	3,3'-Dichlorobenzidine	91-94-1	1,400		120	1
10727	2,4-Dichlorophenol	120-83-2	2,000		20	1
10727	Diethylphthalate	84-66-2	2,000		81	1
10727	2,4-Dimethylphenol	105-67-9	1,800		20	1

Sample Description: S25-SS01-0305-120711MSD Matrix Spike Dup Composite
Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6493533
LLI Group # 1280063
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/07/2011 15:55 by OO

Submitted: 12/08/2011 09:50
Reported: 12/23/2011 09:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S1305 SDG#: DHR03-03MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**	**ug/kg**	
10727	Dimethylphthalate	131-11-3	2,000	81	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	1,300	200	1
10727	2,4-Dinitrophenol	51-28-5	1,600	410	1
10727	2,4-Dinitrotoluene	121-14-2	2,000	81	1
10727	2,6-Dinitrotoluene	606-20-2	2,100	20	1
10727	1,4-Dioxane	123-91-1	1,100	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	1,900	81	1
10727	Fluoranthene	206-44-0	1,900	4	1
10727	Fluorene	86-73-7	1,900	4	1
10727	Hexachlorobenzene	118-74-1	2,000	4	1
10727	Hexachlorocyclopentadiene	77-47-4	3,900	200	1
10727	Hexachloroethane	67-72-1	1,700	41	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	1,900	4	1
10727	Isophorone	78-59-1	1,800	20	1
10727	2-Methylnaphthalene	91-57-6	1,900	4	1
10727	2-Methylphenol	95-48-7	1,900	20	1
10727	4-Methylphenol	106-44-5	1,900	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.				
10727	2-Nitroaniline	88-74-4	2,100	20	1
10727	3-Nitroaniline	99-09-2	2,000	81	1
10727	4-Nitroaniline	100-01-6	1,700	81	1
10727	Nitrobenzene	98-95-3	1,900	20	1
10727	2-Nitrophenol	88-75-5	2,000	20	1
10727	4-Nitrophenol	100-02-7	1,500	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	1,700	20	1
10727	N-Nitrosodiphenylamine	86-30-6	1,900	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.				
10727	Di-n-octylphthalate	117-84-0	2,300	81	1
10727	Pentachlorophenol	87-86-5	1,600	41	1
10727	Phenanthrene	85-01-8	1,900	4	1
10727	Phenol	108-95-2	1,900	20	1
10727	Pyrene	129-00-0	1,800	4	1
10727	2,4,5-Trichlorophenol	95-95-4	2,000	20	1
10727	2,4,6-Trichlorophenol	88-06-2	2,000	20	1
Metals	**SW-846 6010B**		**mg/kg**	**mg/kg**	
06946	Barium	7440-39-3	427	0.0217	1
06949	Cadmium	7440-43-9	7.39	0.0241	1
06951	Chromium	7440-47-3	53.7	0.169	1
06955	Lead	7439-92-1	29.4	0.266	1
06936	Selenium	7782-49-2	18.5	0.821	1
06966	Silver	7440-22-4	6.03	0.100	1
	SW-846 6020		**mg/kg**	**mg/kg**	
06125	Arsenic	7440-38-2	19.1	0.0956	2

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Analysis Report

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Sample Description: S25-SS01-0305-120711MSD Matrix Spike Dup Composite
Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6493533
LLI Group # 1280063
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/07/2011 15:55 by OO

Submitted: 12/08/2011 09:50
Reported: 12/23/2011 09:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S1305 SDG#: DHR03-03MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.256	0.0083	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00118	Moisture	n.a.	18.0	0.50	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113461AA	12/12/2011 17:28	Emily R Styer	0.85
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113461AA	12/12/2011 18:13	Emily R Styer	0.83
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134226391	12/08/2011 14:10	Christopher D Meeks	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134226391	12/08/2011 14:10	Christopher D Meeks	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134226391	12/08/2011 14:10	Christopher D Meeks	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11344SLD026	12/13/2011 04:42	Jennifer R Riggs	1
10809	BNA Soil Microwave	SW-846 3546	1	11344SLD026	12/12/2011 12:30	Olivia I Santiago	1
06946	Barium	SW-846 6010B	1	113435708002	12/12/2011 13:06	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113435708002	12/12/2011 13:06	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113435708002	12/12/2011 13:06	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113435708002	12/12/2011 13:06	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113435708002	12/15/2011 10:12	Joanne M Gates	1
06966	Silver	SW-846 6010B	1	113435708002	12/12/2011 13:06	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113431026002A	12/14/2011 10:59	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113435711002	12/12/2011 08:41	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113435708002	12/11/2011 20:43	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113431026002	12/11/2011 20:45	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113435711002	12/11/2011 23:10	Annamaria Stipkovits	1
00118	Moisture	SM20 2540 G	1	11343820002B	12/09/2011 21:40	Scott W Freisher	1

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Analysis Report

REVISED

Sample Description: S25-SS01-0305-120711 Duplicate Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6493534
LLI Group # 1280063
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/07/2011 15:55 by OO

Submitted: 12/08/2011 09:50
Reported: 12/23/2011 09:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S1305 SDG#: DHR03-03DUP

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals		**SW-846 6010B**	**mg/kg**	**mg/kg**	
06946	Barium	7440-39-3	192	0.0213	1
06949	Cadmium	7440-43-9	1.54	0.0237	1
06951	Chromium	7440-47-3	21.5	0.166	1
06955	Lead	7439-92-1	10.4	0.260	1
06936	Selenium	7782-49-2	1.05 J	0.805	1
06966	Silver	7440-22-4	0.0983 U	0.0983	1
		SW-846 6020	**mg/kg**	**mg/kg**	
06125	Arsenic	7440-38-2	15.9	0.0976	2
		SW-846 7471A	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0303 J	0.0082	1
Wet Chemistry		**SM20 2540 G**	**%**	**%**	
00118	Moisture	n.a.	18.0	0.50	1
00121	Moisture Duplicate	n.a.	18.4	0.50	1

The duplicate moisture value is provided to assess the precision of the moisture test. For comparability purposes, the initial moisture determination is the value used to perform dry weight calculations.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06946	Barium	SW-846 6010B	1	113435708002	12/12/2011 12:59	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113435708002	12/12/2011 12:59	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113435708002	12/12/2011 12:59	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113435708002	12/12/2011 12:59	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113435708002	12/15/2011 10:04	Joanne M Gates	1
06966	Silver	SW-846 6010B	1	113435708002	12/12/2011 12:59	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113431026002A	12/14/2011 10:54	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113435711002	12/12/2011 08:38	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113435708002	12/11/2011 20:43	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113431026002	12/11/2011 20:45	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113435711002	12/11/2011 23:10	Annamaria Stipkovits	1
00118	Moisture	SM20 2540 G	1	11343820002B	12/09/2011 21:40	Scott W Freisher	1
00121	Moisture Duplicate	SM20 2540 G	1	11343820002B	12/09/2011 21:40	Scott W Freisher	1

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Analysis Report

REVISED

Sample Description: S25-SS01-0810-120711 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6493535
LLI Group # 1280063
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/07/2011 16:00 by OO

Submitted: 12/08/2011 09:50
Reported: 12/23/2011 09:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S1810 SDG#: DHR03-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	8	J	8	0.87
10949	Benzene	71-43-2	0.5	U	0.5	0.87
10949	Bromobenzene	108-86-1	1	U	1	0.87
10949	Bromochloromethane	74-97-5	1	U	1	0.87
10949	Bromodichloromethane	75-27-4	1	U	1	0.87
10949	Bromoform	75-25-2	1	U	1	0.87
10949	Bromomethane	74-83-9	2	U	2	0.87
10949	2-Butanone	78-93-3	4	U	4	0.87
10949	n-Butylbenzene	104-51-8	1	U	1	0.87
10949	sec-Butylbenzene	135-98-8	1	U	1	0.87
10949	tert-Butylbenzene	98-06-6	1	U	1	0.87
10949	Carbon Disulfide	75-15-0	1	U	1	0.87
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.87
10949	Chlorobenzene	108-90-7	1	U	1	0.87
10949	Chloroethane	75-00-3	2	U	2	0.87
10949	Chloroform	67-66-3	1	U	1	0.87
10949	Chloromethane	74-87-3	2	U	2	0.87
10949	2-Chlorotoluene	95-49-8	1	U	1	0.87
10949	4-Chlorotoluene	106-43-4	1	U	1	0.87
10949	Cyclohexane	110-82-7	1	U	1	0.87
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.87
10949	Dibromochloromethane	124-48-1	1	U	1	0.87
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.87
10949	Dibromomethane	74-95-3	1	U	1	0.87
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.87
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.87
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.87
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.87
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.87
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.87
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.87
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.87
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.87
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.87
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.87
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.87
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.87
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.87
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.87
10949	Ethylbenzene	100-41-4	1	U	1	0.87
10949	Freon 113	76-13-1	2	U	2	0.87
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.87
10949	2-Hexanone	591-78-6	3	U	3	0.87
10949	Isopropylbenzene	98-82-8	1	U	1	0.87
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.87
10949	Methyl Acetate	79-20-9	2	U	2	0.87
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.87
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.87
10949	Methylcyclohexane	108-87-2	1	U	1	0.87
10949	Methylene Chloride	75-09-2	2	U	2	0.87
10949	Naphthalene	91-20-3	1	U	1	0.87

Sample Description: S25-SS01-0810-120711 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6493535
LLI Group # 1280063
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/07/2011 16:00 by OO

Submitted: 12/08/2011 09:50
Reported: 12/23/2011 09:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S1810 SDG#: DHR03-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.87
10949	Styrene	100-42-5	1	U	1	0.87
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.87
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.87
10949	Tetrachloroethene	127-18-4	1	U	1	0.87
10949	Toluene	108-88-3	1	U	1	0.87
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.87
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.87
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.87
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.87
10949	Trichloroethene	79-01-6	1	U	1	0.87
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.87
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.87
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.87
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.87
10949	Vinyl Acetate	108-05-4	2	U	2	0.87
10949	Vinyl Chloride	75-01-4	1	U	1	0.87
10949	m+p-Xylene	179601-23-1	1	U	1	0.87
10949	o-Xylene	95-47-6	1	U	1	0.87
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	210	U	210	1
10727	1,1'-Biphenyl	92-52-4	21	U	21	1
10727	4-Bromophenyl-phenylether	101-55-3	21	U	21	1
10727	Butylbenzylphthalate	85-68-7	83	U	83	1
10727	Di-n-butylphthalate	84-74-2	83	U	83	1
10727	Carbazole	86-74-8	21	U	21	1
10727	4-Chloro-3-methylphenol	59-50-7	21	U	21	1
10727	4-Chloroaniline	106-47-8	21	U	21	1
10727	bis(2-Chloroethoxy)methane	111-91-1	21	U	21	1
10727	bis(2-Chloroethyl)ether	111-44-4	21	U	21	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	21	U	21	1
10727	4-Chlorophenyl-phenylether	7005-72-3	21	U	21	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	21	U	21	1
10727	3,3'-Dichlorobenzidine	91-94-1	130	U	130	1
10727	2,4-Dichlorophenol	120-83-2	21	U	21	1
10727	Diethylphthalate	84-66-2	83	U	83	1
10727	2,4-Dimethylphenol	105-67-9	21	U	21	1
10727	Dimethylphthalate	131-11-3	83	U	83	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	210	U	210	1

Sample Description: S25-SS01-0810-120711 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6493535
LLI Group # 1280063
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/07/2011 16:00 by OO

Submitted: 12/08/2011 09:50
Reported: 12/23/2011 09:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S1810 SDG#: DHR03-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	420	U	420	1
10727	2,4-Dinitrotoluene	121-14-2	83	U	83	1
10727	2,6-Dinitrotoluene	606-20-2	21	U	21	1
10727	1,4-Dioxane	123-91-1	130	U	130	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	83	U	83	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	210	U	210	1
10727	Hexachloroethane	67-72-1	42	U	42	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	21	U	21	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	21	U	21	1
10727	4-Methylphenol	106-44-5	21	U	21	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	21	U	21	1
10727	3-Nitroaniline	99-09-2	83	U	83	1
10727	4-Nitroaniline	100-01-6	83	U	83	1
10727	Nitrobenzene	98-95-3	21	U	21	1
10727	2-Nitrophenol	88-75-5	21	U	21	1
10727	4-Nitrophenol	100-02-7	210	U	210	1
10727	N-Nitroso-di-n-propylamine	621-64-7	21	U	21	1
10727	N-Nitrosodiphenylamine	86-30-6	21	U	21	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	83	U	83	1
10727	Pentachlorophenol	87-86-5	42	U	42	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	21	U	21	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	21	U	21	1
10727	2,4,6-Trichlorophenol	88-06-2	21	U	21	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	126		0.0225	1
06949	Cadmium	7440-43-9	1.45		0.0250	1
06951	Chromium	7440-47-3	18.8		0.175	1
06955	Lead	7439-92-1	8.08		0.275	1
06936	Selenium	7782-49-2	0.887	J	0.851	1
06966	Silver	7440-22-4	0.104	U	0.104	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	14.7		0.0972	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0336	J	0.0083	1

Lancaster Laboratories

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Analysis Report

Sample Description: S25-SS01-0810-120711 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6493535
LLI Group # 1280063
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/07/2011 16:00 by OO

Submitted: 12/08/2011 09:50
Reported: 12/23/2011 09:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

S1810 SDG#: DHR03-04

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	20.1	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113461AA	12/12/2011 18:36	Emily R Styer	0.87
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134226391	12/08/2011 14:12	Christopher D Meeks	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134226391	12/08/2011 14:13	Christopher D Meeks	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134226391	12/08/2011 14:12	Christopher D Meeks	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11344SLD026	12/13/2011 05:54	Jennifer R Riggs	1
10809	BNA Soil Microwave	SW-846 3546	1	11344SLD026	12/12/2011 12:30	Olivia I Santiago	1
06946	Barium	SW-846 6010B	1	113435708002	12/12/2011 13:44	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113435708002	12/12/2011 13:44	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113435708002	12/12/2011 13:44	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113435708002	12/12/2011 13:44	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113435708002	12/15/2011 10:53	Joanne M Gates	1
06966	Silver	SW-846 6010B	1	113435708002	12/12/2011 13:44	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113431026002A	12/14/2011 11:11	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113435711002	12/12/2011 08:42	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113435708002	12/11/2011 20:43	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113431026002	12/11/2011 20:45	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113435711002	12/11/2011 23:10	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11343820002B	12/09/2011 21:40	Scott W Freisher	1

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Analysis Report

REVISED

Sample Description: S25-SS03-0002-120711 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6493536
LLI Group # 1280063
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/07/2011 16:20 by OO

Submitted: 12/08/2011 09:50
Reported: 12/23/2011 09:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

53002 SDG#: DHR03-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	25		7	0.85
10949	Benzene	71-43-2	0.5	U	0.5	0.85
10949	Bromobenzene	108-86-1	1	U	1	0.85
10949	Bromochloromethane	74-97-5	1	U	1	0.85
10949	Bromodichloromethane	75-27-4	1	U	1	0.85
10949	Bromoform	75-25-2	1	U	1	0.85
10949	Bromomethane	74-83-9	2	U	2	0.85
10949	2-Butanone	78-93-3	4	U	4	0.85
10949	n-Butylbenzene	104-51-8	1	U	1	0.85
10949	sec-Butylbenzene	135-98-8	1	U	1	0.85
10949	tert-Butylbenzene	98-06-6	1	U	1	0.85
10949	Carbon Disulfide	75-15-0	1	U	1	0.85
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.85
10949	Chlorobenzene	108-90-7	1	U	1	0.85
10949	Chloroethane	75-00-3	2	U	2	0.85
10949	Chloroform	67-66-3	1	U	1	0.85
10949	Chloromethane	74-87-3	2	U	2	0.85
10949	2-Chlorotoluene	95-49-8	1	U	1	0.85
10949	4-Chlorotoluene	106-43-4	1	U	1	0.85
10949	Cyclohexane	110-82-7	1	U	1	0.85
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.85
10949	Dibromochloromethane	124-48-1	1	U	1	0.85
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.85
10949	Dibromomethane	74-95-3	1	U	1	0.85
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.85
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.85
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.85
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.85
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.85
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.85
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.85
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.85
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.85
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.85
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.85
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.85
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.85
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.85
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.85
10949	Ethylbenzene	100-41-4	1	U	1	0.85
10949	Freon 113	76-13-1	2	U	2	0.85
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.85
10949	2-Hexanone	591-78-6	3	U	3	0.85
10949	Isopropylbenzene	98-82-8	1	U	1	0.85
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.85
10949	Methyl Acetate	79-20-9	2	U	2	0.85
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.85
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.85
10949	Methylcyclohexane	108-87-2	1	U	1	0.85
10949	Methylene Chloride	75-09-2	2	U	2	0.85
10949	Naphthalene	91-20-3	1	U	1	0.85

Sample Description: S25-SS03-0002-120711 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6493536
LLI Group # 1280063
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/07/2011 16:20 by OO

Submitted: 12/08/2011 09:50
Reported: 12/23/2011 09:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

53002 SDG#: DHR03-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.85
10949	Styrene	100-42-5	1	U	1	0.85
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.85
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.85
10949	Tetrachloroethene	127-18-4	1	U	1	0.85
10949	Toluene	108-88-3	1	U	1	0.85
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.85
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.85
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.85
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.85
10949	Trichloroethene	79-01-6	1	U	1	0.85
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.85
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.85
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.85
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.85
10949	Vinyl Acetate	108-05-4	2	U	2	0.85
10949	Vinyl Chloride	75-01-4	1	U	1	0.85
10949	m+p-Xylene	179601-23-1	1	U	1	0.85
10949	o-Xylene	95-47-6	1	U	1	0.85
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	360		4	1
10727	Acenaphthylene	208-96-8	11	J	4	1
10727	Anthracene	120-12-7	450		4	1
10727	Benzo(a)anthracene	56-55-3	740		4	1
10727	Benzo(a)pyrene	50-32-8	710		4	1
10727	Benzo(b)fluoranthene	205-99-2	930		4	1
10727	Benzo(g,h,i)perylene	191-24-2	500		4	1
10727	Benzo(k)fluoranthene	207-08-9	390		4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	240		20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	79	U	79	1
10727	Di-n-butylphthalate	84-74-2	79	U	79	1
10727	Carbazole	86-74-8	260		20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	8	U	8	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	720		4	1
10727	Dibenz(a,h)anthracene	53-70-3	84		4	1
10727	Dibenzofuran	132-64-9	190		20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1
10727	Diethylphthalate	84-66-2	79	U	79	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	79	U	79	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1

Sample Description: S25-SS03-0002-120711 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6493536
LLI Group # 1280063
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/07/2011 16:20 by OO

Submitted: 12/08/2011 09:50
Reported: 12/23/2011 09:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

53002 SDG#: DHR03-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	390	U	390	1
10727	2,4-Dinitrotoluene	121-14-2	79	U	79	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	79	U	79	1
10727	Fluoranthene	206-44-0	2,200		4	1
10727	Fluorene	86-73-7	300		4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	39	U	39	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	420		4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	71		4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	79	U	79	1
10727	4-Nitroaniline	100-01-6	79	U	79	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	79	U	79	1
10727	Pentachlorophenol	87-86-5	39	U	39	1
10727	Phenanthrene	85-01-8	2,200		4	1
10727	Phenol	108-95-2	20	U	20	1
10727	Pyrene	129-00-0	1,800		4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	141		0.0210	1
06949	Cadmium	7440-43-9	1.45		0.0234	1
06951	Chromium	7440-47-3	18.8		0.164	1
06955	Lead	7439-92-1	14.9		0.257	1
06936	Selenium	7782-49-2	1.47	J	0.795	1
06966	Silver	7440-22-4	0.0970	U	0.0970	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	15.7		0.0908	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0918	J	0.0081	1

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Analysis Report

Sample Description: S25-SS03-0002-120711 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6493536
LLI Group # 1280063
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/07/2011 16:20 by OO

Submitted: 12/08/2011 09:50
Reported: 12/23/2011 09:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

53002 SDG#: DHR03-05

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	15.3	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113461AA	12/12/2011 18:59	Emily R Styer	0.85
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134226391	12/08/2011 14:15	Christopher D Meeks	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134226391	12/08/2011 14:15	Christopher D Meeks	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134226391	12/08/2011 14:14	Christopher D Meeks	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11344SLD026	12/13/2011 06:18	Jennifer R Riggs	1
10809	BNA Soil Microwave	SW-846 3546	1	11344SLD026	12/12/2011 12:30	Olivia I Santiago	1
06946	Barium	SW-846 6010B	1	113435708002	12/12/2011 13:47	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113435708002	12/12/2011 13:47	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113435708002	12/12/2011 13:47	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113435708002	12/12/2011 13:47	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113435708002	12/15/2011 10:57	Joanne M Gates	1
06966	Silver	SW-846 6010B	1	113435708002	12/12/2011 13:47	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113431026002A	12/14/2011 11:13	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113435711002	12/12/2011 08:43	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113435708002	12/11/2011 20:43	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113431026002	12/11/2011 20:45	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113435711002	12/11/2011 23:10	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11343820002B	12/09/2011 21:40	Scott W Freisher	1

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Analysis Report

REVISED

Sample Description: S25-SS03-0305-120711 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6493537
LLI Group # 1280063
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/07/2011 16:25 by OO

Submitted: 12/08/2011 09:50
Reported: 12/23/2011 09:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

53305 SDG#: DHR03-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	90		7	0.85
10949	Benzene	71-43-2	0.5	U	0.5	0.85
10949	Bromobenzene	108-86-1	1	U	1	0.85
10949	Bromochloromethane	74-97-5	1	U	1	0.85
10949	Bromodichloromethane	75-27-4	1	U	1	0.85
10949	Bromoform	75-25-2	1	U	1	0.85
10949	Bromomethane	74-83-9	2	U	2	0.85
10949	2-Butanone	78-93-3	8	J	4	0.85
10949	n-Butylbenzene	104-51-8	1	U	1	0.85
10949	sec-Butylbenzene	135-98-8	1	U	1	0.85
10949	tert-Butylbenzene	98-06-6	1	U	1	0.85
10949	Carbon Disulfide	75-15-0	1	U	1	0.85
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.85
10949	Chlorobenzene	108-90-7	1	U	1	0.85
10949	Chloroethane	75-00-3	2	U	2	0.85
10949	Chloroform	67-66-3	1	U	1	0.85
10949	Chloromethane	74-87-3	2	U	2	0.85
10949	2-Chlorotoluene	95-49-8	1	U	1	0.85
10949	4-Chlorotoluene	106-43-4	1	U	1	0.85
10949	Cyclohexane	110-82-7	1	U	1	0.85
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.85
10949	Dibromochloromethane	124-48-1	1	U	1	0.85
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.85
10949	Dibromomethane	74-95-3	1	U	1	0.85
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.85
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.85
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.85
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.85
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.85
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.85
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.85
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.85
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.85
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.85
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.85
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.85
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.85
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.85
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.85
10949	Ethylbenzene	100-41-4	1	U	1	0.85
10949	Freon 113	76-13-1	2	U	2	0.85
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.85
10949	2-Hexanone	591-78-6	3	U	3	0.85
10949	Isopropylbenzene	98-82-8	1	U	1	0.85
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.85
10949	Methyl Acetate	79-20-9	2	U	2	0.85
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.85
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.85
10949	Methylcyclohexane	108-87-2	1	U	1	0.85
10949	Methylene Chloride	75-09-2	2	U	2	0.85
10949	Naphthalene	91-20-3	1	U	1	0.85

Sample Description: S25-SS03-0305-120711 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6493537
LLI Group # 1280063
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/07/2011 16:25 by OO

Submitted: 12/08/2011 09:50
Reported: 12/23/2011 09:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

53305 SDG#: DHR03-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.85
10949	Styrene	100-42-5	1	U	1	0.85
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.85
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.85
10949	Tetrachloroethene	127-18-4	1	U	1	0.85
10949	Toluene	108-88-3	1	U	1	0.85
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.85
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.85
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.85
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.85
10949	Trichloroethene	79-01-6	1	U	1	0.85
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.85
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.85
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.85
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.85
10949	Vinyl Acetate	108-05-4	2	U	2	0.85
10949	Vinyl Chloride	75-01-4	1	U	1	0.85
10949	m+p-Xylene	179601-23-1	1	U	1	0.85
10949	o-Xylene	95-47-6	1	U	1	0.85
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	20	U	20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	81	U	81	1
10727	Di-n-butylphthalate	84-74-2	81	U	81	1
10727	Carbazole	86-74-8	20	U	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	20	U	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1
10727	Diethylphthalate	84-66-2	81	U	81	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	81	U	81	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1

Sample Description: S25-SS03-0305-120711 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6493537
LLI Group # 1280063
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/07/2011 16:25 by OO

Submitted: 12/08/2011 09:50
Reported: 12/23/2011 09:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

53305 SDG#: DHR03-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	410	U	410	1
10727	2,4-Dinitrotoluene	121-14-2	81	U	81	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	81	U	81	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	41	U	41	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	81	U	81	1
10727	4-Nitroaniline	100-01-6	81	U	81	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	81	U	81	1
10727	Pentachlorophenol	87-86-5	41	U	41	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	20	U	20	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	108		0.0211	1
06949	Cadmium	7440-43-9	1.36		0.0235	1
06951	Chromium	7440-47-3	22.6		0.164	1
06955	Lead	7439-92-1	9.12		0.258	1
06936	Selenium	7782-49-2	1.50	J	0.798	1
06966	Silver	7440-22-4	0.0974	U	0.0974	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	14.2		0.0977	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0227	J	0.0082	1

Lancaster Laboratories

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Analysis Report

Sample Description: S25-SS03-0305-120711 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6493537
LLI Group # 1280063
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/07/2011 16:25 by OO

Submitted: 12/08/2011 09:50
Reported: 12/23/2011 09:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

53305 SDG#: DHR03-06

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	18.1	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113461AA	12/12/2011 19:21	Emily R Styer	0.85
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134226391	12/08/2011 14:17	Christopher D Meeks	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134226391	12/08/2011 14:17	Christopher D Meeks	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134226391	12/08/2011 14:16	Christopher D Meeks	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11344SLD026	12/13/2011 06:42	Jennifer R Riggs	1
10809	BNA Soil Microwave	SW-846 3546	1	11344SLD026	12/12/2011 12:30	Olivia I Santiago	1
06946	Barium	SW-846 6010B	1	113435708002	12/12/2011 13:51	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113435708002	12/12/2011 13:51	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113435708002	12/12/2011 13:51	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113435708002	12/12/2011 13:51	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113435708002	12/15/2011 11:01	Joanne M Gates	1
06966	Silver	SW-846 6010B	1	113435708002	12/12/2011 13:51	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113431026002A	12/14/2011 11:15	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113435711002	12/12/2011 08:48	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113435708002	12/11/2011 20:43	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113431026002	12/11/2011 20:45	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113435711002	12/11/2011 23:10	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11343820002B	12/09/2011 21:40	Scott W Freisher	1

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Analysis Report

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Sample Description: S24-SS03-0810-120711 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6493538
LLI Group # 1280063
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/07/2011 16:30 by OO

Submitted: 12/08/2011 09:50
Reported: 12/23/2011 09:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

53810 SDG#: DHR03-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	23		7	0.85
10949	Benzene	71-43-2	0.5	U	0.5	0.85
10949	Bromobenzene	108-86-1	1	U	1	0.85
10949	Bromochloromethane	74-97-5	1	U	1	0.85
10949	Bromodichloromethane	75-27-4	1	U	1	0.85
10949	Bromoform	75-25-2	1	U	1	0.85
10949	Bromomethane	74-83-9	2	U	2	0.85
10949	2-Butanone	78-93-3	4	U	4	0.85
10949	n-Butylbenzene	104-51-8	1	U	1	0.85
10949	sec-Butylbenzene	135-98-8	1	U	1	0.85
10949	tert-Butylbenzene	98-06-6	1	U	1	0.85
10949	Carbon Disulfide	75-15-0	1	U	1	0.85
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.85
10949	Chlorobenzene	108-90-7	1	U	1	0.85
10949	Chloroethane	75-00-3	2	U	2	0.85
10949	Chloroform	67-66-3	1	U	1	0.85
10949	Chloromethane	74-87-3	2	U	2	0.85
10949	2-Chlorotoluene	95-49-8	1	U	1	0.85
10949	4-Chlorotoluene	106-43-4	1	U	1	0.85
10949	Cyclohexane	110-82-7	1	U	1	0.85
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.85
10949	Dibromochloromethane	124-48-1	1	U	1	0.85
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.85
10949	Dibromomethane	74-95-3	1	U	1	0.85
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.85
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.85
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.85
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.85
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.85
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.85
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.85
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.85
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.85
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.85
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.85
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.85
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.85
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.85
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.85
10949	Ethylbenzene	100-41-4	1	U	1	0.85
10949	Freon 113	76-13-1	2	U	2	0.85
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.85
10949	2-Hexanone	591-78-6	3	U	3	0.85
10949	Isopropylbenzene	98-82-8	1	U	1	0.85
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.85
10949	Methyl Acetate	79-20-9	2	U	2	0.85
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.85
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.85
10949	Methylcyclohexane	108-87-2	1	U	1	0.85
10949	Methylene Chloride	75-09-2	2	U	2	0.85
10949	Naphthalene	91-20-3	1	U	1	0.85

Sample Description: S24-SS03-0810-120711 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6493538
LLI Group # 1280063
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/07/2011 16:30 by OO

Submitted: 12/08/2011 09:50
Reported: 12/23/2011 09:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

53810 SDG#: DHR03-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.85
10949	Styrene	100-42-5	1	U	1	0.85
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.85
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.85
10949	Tetrachloroethene	127-18-4	1	U	1	0.85
10949	Toluene	108-88-3	1	U	1	0.85
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.85
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.85
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.85
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.85
10949	Trichloroethene	79-01-6	1	U	1	0.85
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.85
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.85
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.85
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.85
10949	Vinyl Acetate	108-05-4	2	U	2	0.85
10949	Vinyl Chloride	75-01-4	1	U	1	0.85
10949	m+p-Xylene	179601-23-1	1	U	1	0.85
10949	o-Xylene	95-47-6	1	U	1	0.85
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	210	U	210	1
10727	1,1'-Biphenyl	92-52-4	21	U	21	1
10727	4-Bromophenyl-phenylether	101-55-3	21	U	21	1
10727	Butylbenzylphthalate	85-68-7	83	U	83	1
10727	Di-n-butylphthalate	84-74-2	83	U	83	1
10727	Carbazole	86-74-8	21	U	21	1
10727	4-Chloro-3-methylphenol	59-50-7	21	U	21	1
10727	4-Chloroaniline	106-47-8	21	U	21	1
10727	bis(2-Chloroethoxy)methane	111-91-1	21	U	21	1
10727	bis(2-Chloroethyl)ether	111-44-4	21	U	21	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	21	U	21	1
10727	4-Chlorophenyl-phenylether	7005-72-3	21	U	21	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	21	U	21	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	21	U	21	1
10727	Diethylphthalate	84-66-2	83	U	83	1
10727	2,4-Dimethylphenol	105-67-9	21	U	21	1
10727	Dimethylphthalate	131-11-3	83	U	83	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	210	U	210	1

Sample Description: S24-SS03-0810-120711 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6493538
LLI Group # 1280063
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/07/2011 16:30 by OO

Submitted: 12/08/2011 09:50
Reported: 12/23/2011 09:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

53810 SDG#: DHR03-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	410	U	410	1
10727	2,4-Dinitrotoluene	121-14-2	83	U	83	1
10727	2,6-Dinitrotoluene	606-20-2	21	U	21	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	83	U	83	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	210	U	210	1
10727	Hexachloroethane	67-72-1	41	U	41	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	21	U	21	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	21	U	21	1
10727	4-Methylphenol	106-44-5	21	U	21	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	21	U	21	1
10727	3-Nitroaniline	99-09-2	83	U	83	1
10727	4-Nitroaniline	100-01-6	83	U	83	1
10727	Nitrobenzene	98-95-3	21	U	21	1
10727	2-Nitrophenol	88-75-5	21	U	21	1
10727	4-Nitrophenol	100-02-7	210	U	210	1
10727	N-Nitroso-di-n-propylamine	621-64-7	21	U	21	1
10727	N-Nitrosodiphenylamine	86-30-6	21	U	21	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	83	U	83	1
10727	Pentachlorophenol	87-86-5	41	U	41	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	21	U	21	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	21	U	21	1
10727	2,4,6-Trichlorophenol	88-06-2	21	U	21	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	96.3		0.0221	1
06949	Cadmium	7440-43-9	1.45		0.0245	1
06951	Chromium	7440-47-3	18.5		0.172	1
06955	Lead	7439-92-1	16.7		0.270	1
06936	Selenium	7782-49-2	0.991	J	0.834	1
06966	Silver	7440-22-4	0.102	U	0.102	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	18.4		0.0991	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0105	J	0.0084	1

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Analysis Report

Sample Description: S24-SS03-0810-120711 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6493538
LLI Group # 1280063
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/07/2011 16:30 by OO

Submitted: 12/08/2011 09:50
Reported: 12/23/2011 09:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

53810 SDG#: DHR03-07

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	19.3	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113461AA	12/12/2011 19:44	Emily R Styer	0.85
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134226391	12/08/2011 14:19	Christopher D Meeks	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134226391	12/08/2011 14:20	Christopher D Meeks	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134226391	12/08/2011 14:19	Christopher D Meeks	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11344SLD026	12/13/2011 07:06	Jennifer R Riggs	1
10809	BNA Soil Microwave	SW-846 3546	1	11344SLD026	12/12/2011 12:30	Olivia I Santiago	1
06946	Barium	SW-846 6010B	1	113435708002	12/12/2011 13:55	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113435708002	12/12/2011 13:55	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113435708002	12/12/2011 13:55	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113435708002	12/16/2011 10:21	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113435708002	12/15/2011 11:05	Joanne M Gates	1
06966	Silver	SW-846 6010B	1	113435708002	12/12/2011 13:55	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113431026002A	12/14/2011 11:17	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113435711002	12/12/2011 08:49	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113435708002	12/11/2011 20:43	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113431026002	12/11/2011 20:45	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113435711002	12/11/2011 23:10	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11343820002B	12/09/2011 21:40	Scott W Freisher	1

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Analysis Report

REVISED

Sample Description: 120711_TB Water Sample
Dow Hanging Rock, OH

LLI Sample # WW 6493539
LLI Group # 1280063
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/07/2011

Submitted: 12/08/2011 09:50
Reported: 12/23/2011 09:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

07-TB SDG#: DHR03-08TB

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**		**ug/l**	
10904	Acetone	67-64-1	6	U	6	1
10904	Benzene	71-43-2	0.5	U	0.5	1
10904	Bromobenzene	108-86-1	1	U	1	1
10904	Bromochloromethane	74-97-5	1	U	1	1
10904	Bromodichloromethane	75-27-4	1	U	1	1
10904	Bromoform	75-25-2	1	U	1	1
10904	Bromomethane	74-83-9	1	U	1	1
10904	2-Butanone	78-93-3	3	U	3	1
10904	n-Butylbenzene	104-51-8	1	U	1	1
10904	sec-Butylbenzene	135-98-8	1	U	1	1
10904	tert-Butylbenzene	98-06-6	1	U	1	1
10904	Carbon Disulfide	75-15-0	1	U	1	1
10904	Carbon Tetrachloride	56-23-5	1	U	1	1
10904	Chlorobenzene	108-90-7	0.8	U	0.8	1
10904	Chloroethane	75-00-3	1	U	1	1
10904	Chloroform	67-66-3	0.8	U	0.8	1
10904	Chloromethane	74-87-3	1	U	1	1
10904	2-Chlorotoluene	95-49-8	1	U	1	1
10904	4-Chlorotoluene	106-43-4	1	U	1	1
10904	Cyclohexane	110-82-7	2	U	2	1
10904	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	1
10904	Dibromochloromethane	124-48-1	1	U	1	1
10904	1,2-Dibromoethane	106-93-4	1	U	1	1
10904	Dibromomethane	74-95-3	1	U	1	1
10904	1,2-Dichlorobenzene	95-50-1	1	U	1	1
10904	1,3-Dichlorobenzene	541-73-1	1	U	1	1
10904	1,4-Dichlorobenzene	106-46-7	1	U	1	1
10904	Dichlorodifluoromethane	75-71-8	2	U	2	1
10904	1,1-Dichloroethane	75-34-3	1	U	1	1
10904	1,2-Dichloroethane	107-06-2	1	U	1	1
10904	1,1-Dichloroethene	75-35-4	0.8	U	0.8	1
10904	cis-1,2-Dichloroethene	156-59-2	0.8	U	0.8	1
10904	trans-1,2-Dichloroethene	156-60-5	0.8	U	0.8	1
10904	1,2-Dichloropropane	78-87-5	1	U	1	1
10904	1,3-Dichloropropane	142-28-9	1	U	1	1
10904	2,2-Dichloropropane	594-20-7	1	U	1	1
10904	1,1-Dichloropropene	563-58-6	1	U	1	1
10904	cis-1,3-Dichloropropene	10061-01-5	1	U	1	1
10904	trans-1,3-Dichloropropene	10061-02-6	1	U	1	1
10904	Ethylbenzene	100-41-4	0.8	U	0.8	1
10904	Freon 113	76-13-1	2	U	2	1
10904	Hexachlorobutadiene	87-68-3	2	U	2	1
10904	2-Hexanone	591-78-6	3	U	3	1
10904	Isopropylbenzene	98-82-8	1	U	1	1
10904	p-Isopropyltoluene	99-87-6	1	U	1	1
10904	Methyl Acetate	79-20-9	1	U	1	1
10904	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	1
10904	4-Methyl-2-pentanone	108-10-1	3	U	3	1
10904	Methylcyclohexane	108-87-2	1	U	1	1
10904	Methylene Chloride	75-09-2	2	U	2	1
10904	Naphthalene	91-20-3	1	U	1	1

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Analysis Report

Sample Description: 120711_TB Water Sample
Dow Hanging Rock, OH

LLI Sample # WW 6493539
LLI Group # 1280063
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/07/2011

Submitted: 12/08/2011 09:50
Reported: 12/23/2011 09:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

07-TB SDG#: DHR03-08TB

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/l		ug/l	
10904	n-Propylbenzene	103-65-1	1	U	1	1
10904	Styrene	100-42-5	1	U	1	1
10904	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	1
10904	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	1
10904	Tetrachloroethene	127-18-4	0.8	U	0.8	1
10904	Toluene	108-88-3	0.7	U	0.7	1
10904	1,2,3-Trichlorobenzene	87-61-6	1	U	1	1
10904	1,2,4-Trichlorobenzene	120-82-1	1	U	1	1
10904	1,1,1-Trichloroethane	71-55-6	0.8	U	0.8	1
10904	1,1,2-Trichloroethane	79-00-5	0.8	U	0.8	1
10904	Trichloroethene	79-01-6	1	U	1	1
10904	Trichlorofluoromethane	75-69-4	2	U	2	1
10904	1,2,3-Trichloropropane	96-18-4	1	U	1	1
10904	1,2,4-Trimethylbenzene	95-63-6	1	U	1	1
10904	1,3,5-Trimethylbenzene	108-67-8	1	U	1	1
10904	Vinyl Acetate	108-05-4	2	U	2	1
10904	Vinyl Chloride	75-01-4	1	U	1	1
10904	m+p-Xylene	179601-23-1	0.8	U	0.8	1
10904	o-Xylene	95-47-6	0.8	U	0.8	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10904	8260 Ext. Water Master	SW-846 8260B	1	Y113483AA	12/15/2011 08:21	Frank A Valla, Jr	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	Y113483AA	12/15/2011 08:21	Frank A Valla, Jr	1

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Analysis Report

REVISED

Sample Description: HGR-120711_EB01 Grab Water Sample
Dow Hanging Rock, OH

LLI Sample # WW 6493540
LLI Group # 1280063
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/07/2011 15:30 by OO

Submitted: 12/08/2011 09:50
Reported: 12/23/2011 09:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

07-EB SDG#: DHR03-09EB*

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**		**ug/l**	
04678	Acenaphthene	83-32-9	0.1	U	0.1	1
04678	Acenaphthylene	208-96-8	0.1	U	0.1	1
04678	Anthracene	120-12-7	0.1	U	0.1	1
04678	Benzo(a)anthracene	56-55-3	0.1	U	0.1	1
04678	Benzo(a)pyrene	50-32-8	0.1	U	0.1	1
04678	Benzo(b)fluoranthene	205-99-2	0.1	U	0.1	1
04678	Benzo(g,h,i)perylene	191-24-2	0.1	U	0.1	1
04678	Benzo(k)fluoranthene	207-08-9	0.1	U	0.1	1
04678	Benzyl alcohol	100-51-6	5	U	5	1
04678	1,1'-Biphenyl	92-52-4	0.5	U	0.5	1
04678	4-Bromophenyl-phenylether	101-55-3	0.5	U	0.5	1
04678	Butylbenzylphthalate	85-68-7	2	U	2	1
04678	Di-n-butylphthalate	84-74-2	2	U	2	1
04678	Carbazole	86-74-8	0.5	U	0.5	1
04678	4-Chloro-3-methylphenol	59-50-7	0.5	U	0.5	1
04678	4-Chloroaniline	106-47-8	0.5	U	0.5	1
04678	bis(2-Chloroethoxy)methane	111-91-1	0.5	U	0.5	1
04678	bis(2-Chloroethyl)ether	111-44-4	0.5	U	0.5	1
04678	2-Chloronaphthalene	91-58-7	0.4	U	0.4	1
04678	2-Chlorophenol	95-57-8	0.5	U	0.5	1
04678	4-Chlorophenyl-phenylether	7005-72-3	0.5	U	0.5	1
04678	Chrysene	218-01-9	0.1	U	0.1	1
04678	Dibenz(a,h)anthracene	53-70-3	0.1	U	0.1	1
04678	Dibenzofuran	132-64-9	0.5	U	0.5	1
04678	3,3'-Dichlorobenzidine	91-94-1	2	U	2	1
04678	2,4-Dichlorophenol	120-83-2	0.5	U	0.5	1
04678	Diethylphthalate	84-66-2	2	U	2	1
04678	2,4-Dimethylphenol	105-67-9	0.5	U	0.5	1
04678	Dimethylphthalate	131-11-3	2	U	2	1
04678	4,6-Dinitro-2-methylphenol	534-52-1	5	U	5	1
04678	2,4-Dinitrophenol	51-28-5	10	U	10	1
04678	2,4-Dinitrotoluene	121-14-2	1	U	1	1
04678	2,6-Dinitrotoluene	606-20-2	0.5	U	0.5	1
04678	1,4-Dioxane	123-91-1	1	U	1	1
04678	bis(2-Ethylhexyl)phthalate	117-81-7	2	U	2	1
04678	Fluoranthene	206-44-0	0.1	U	0.1	1
04678	Fluorene	86-73-7	0.1	U	0.1	1
04678	Hexachlorobenzene	118-74-1	0.1	U	0.1	1
04678	Hexachlorocyclopentadiene	77-47-4	5	U	5	1
04678	Hexachloroethane	67-72-1	1	U	1	1
04678	Indeno(1,2,3-cd)pyrene	193-39-5	0.1	U	0.1	1
04678	Isophorone	78-59-1	0.5	U	0.5	1
04678	2-Methylnaphthalene	91-57-6	0.1	U	0.1	1
04678	2-Methylphenol	95-48-7	0.5	U	0.5	1
04678	4-Methylphenol	106-44-5	0.5	U	0.5	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
04678	2-Nitroaniline	88-74-4	0.5	U	0.5	1
04678	3-Nitroaniline	99-09-2	0.5	U	0.5	1
04678	4-Nitroaniline	100-01-6	0.5	U	0.5	1

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Analysis Report

Sample Description: HGR-120711_EB01 Grab Water Sample
Dow Hanging Rock, OH

LLI Sample # WW 6493540
LLI Group # 1280063
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/07/2011 15:30 by OO

Submitted: 12/08/2011 09:50
Reported: 12/23/2011 09:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

07-EB SDG#: DHR03-09EB*

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**		**ug/l**	
04678	Nitrobenzene	98-95-3	0.5	U	0.5	1
04678	2-Nitrophenol	88-75-5	0.5	U	0.5	1
04678	4-Nitrophenol	100-02-7	10	U	10	1
04678	N-Nitroso-di-n-propylamine	621-64-7	0.5	U	0.5	1
04678	N-Nitrosodiphenylamine	86-30-6	0.5	U	0.5	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
04678	Di-n-octylphthalate	117-84-0	2	U	2	1
04678	Pentachlorophenol	87-86-5	1	U	1	1
04678	Phenanthrene	85-01-8	0.1	U	0.1	1
04678	Phenol	108-95-2	0.5	U	0.5	1
04678	Pyrene	129-00-0	0.1	U	0.1	1
04678	2,4,5-Trichlorophenol	95-95-4	0.5	U	0.5	1
04678	2,4,6-Trichlorophenol	88-06-2	0.5	U	0.5	1
Metals	**SW-846 6010B**		**mg/l**		**mg/l**	
07046	Barium	7440-39-3	0.00026	U	0.00026	1
07049	Cadmium	7440-43-9	0.00027	U	0.00027	1
07051	Chromium	7440-47-3	0.0011	J	0.0011	1
07055	Lead	7439-92-1	0.0022	U	0.0022	1
07036	Selenium	7782-49-2	0.0069	U	0.0069	1
07066	Silver	7440-22-4	0.00091	U	0.00091	1
	SW-846 6020		**mg/l**		**mg/l**	
06025	Arsenic	7440-38-2	0.00095	U	0.00095	1
	SW-846 7470A		**mg/l**		**mg/l**	
00259	Mercury	7439-97-6	0.000026	U	0.000026	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	11344WAH026	12/12/2011 20:33	Holly Berry	1
00813	BNA Water Extraction	SW-846 3510C	1	11344WAH026	12/12/2011 10:00	Kerrie A Freeburn	1
07046	Barium	SW-846 6010B	1	113435705003	12/12/2011 19:10	John P Hook	1
07049	Cadmium	SW-846 6010B	1	113435705003	12/12/2011 19:10	John P Hook	1
07051	Chromium	SW-846 6010B	1	113435705003	12/12/2011 19:10	John P Hook	1
07055	Lead	SW-846 6010B	1	113435705003	12/12/2011 19:10	John P Hook	1
07036	Selenium	SW-846 6010B	1	113435705003	12/12/2011 19:10	John P Hook	1
07066	Silver	SW-846 6010B	1	113435705003	12/12/2011 19:10	John P Hook	1
06025	Arsenic	SW-846 6020	1	113486050002A	12/16/2011 06:15	Choon Y Tian	1

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Analysis Report

REVISED

Sample Description: HGR-120711_EB01 Grab Water Sample
Dow Hanging Rock, OH

LLI Sample # WW 6493540
LLI Group # 1280063
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/07/2011 15:30 by OO

Submitted: 12/08/2011 09:50
Reported: 12/23/2011 09:50

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

07-EB SDG#: DHR03-09EB*

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00259	Mercury	SW-846 7470A	1	113475713004	12/14/2011 11:33	Damary Valentin	1
05705	WW/TL SW 846 ICP Digest (tot)	SW-846 3010A	1	113435705003	12/12/2011 09:58	Denise K Conners	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	113486050002	12/15/2011 09:10	Denise K Conners	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	113475713004	12/14/2011 07:00	Damary Valentin	1

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280063
Reported: 12/23/11 at 09:50 AM

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Laboratory Compliance Quality Control

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: A113461AA	Sample number(s): 6493529-6493533,6493535-6493538								
Acetone	7	U	7.	ug/kg	82		32-209		
Benzene	0.5	U	0.5	ug/kg	88		80-120		
Bromobenzene	1	U	1.	ug/kg	96		79-120		
Bromochloromethane	1	U	1.	ug/kg	94		79-124		
Bromodichloromethane	1	U	1.	ug/kg	92		78-120		
Bromoform	1	U	1.	ug/kg	97		70-120		
Bromomethane	2	U	2.	ug/kg	93		32-162		
2-Butanone	4	U	4.	ug/kg	90		46-153		
n-Butylbenzene	1	U	1.	ug/kg	89		72-120		
sec-Butylbenzene	1	U	1.	ug/kg	92		75-120		
tert-Butylbenzene	1	U	1.	ug/kg	93		75-120		
Carbon Disulfide	1	U	1.	ug/kg	79		67-122		
Carbon Tetrachloride	1	U	1.	ug/kg	106		69-122		
Chlorobenzene	1	U	1.	ug/kg	94		80-120		
Chloroethane	2	U	2.	ug/kg	83		37-154		
Chloroform	1	U	1.	ug/kg	98		80-120		
Chloromethane	2	U	2.	ug/kg	76		54-132		
2-Chlorotoluene	1	U	1.	ug/kg	90		78-120		
4-Chlorotoluene	1	U	1.	ug/kg	92		79-120		
Cyclohexane	1	U	1.	ug/kg	82		62-121		
1,2-Dibromo-3-chloropropane	2	U	2.	ug/kg	87		58-120		
Dibromochloromethane	1	U	1.	ug/kg	95		77-120		
1,2-Dibromoethane	1	U	1.	ug/kg	92		80-120		
Dibromomethane	1	U	1.	ug/kg	91		80-120		
1,2-Dichlorobenzene	1	U	1.	ug/kg	95		79-120		
1,3-Dichlorobenzene	1	U	1.	ug/kg	96		78-120		
1,4-Dichlorobenzene	1	U	1.	ug/kg	96		79-120		
Dichlorodifluoromethane	2	U	2.	ug/kg	90		20-120		
1,1-Dichloroethane	1	U	1.	ug/kg	90		80-120		
1,2-Dichloroethane	1	U	1.	ug/kg	107		71-129		
1,1-Dichloroethene	1	U	1.	ug/kg	90		73-123		
cis-1,2-Dichloroethene	1	U	1.	ug/kg	90		80-120		
trans-1,2-Dichloroethene	1	U	1.	ug/kg	92		79-120		
1,2-Dichloropropane	1	U	1.	ug/kg	80		80-120		
1,3-Dichloropropane	1	U	1.	ug/kg	88		80-120		
2,2-Dichloropropane	1	U	1.	ug/kg	98		72-123		
1,1-Dichloropropene	1	U	1.	ug/kg	92		77-120		
cis-1,3-Dichloropropene	1	U	1.	ug/kg	81		80-120		
trans-1,3-Dichloropropene	1	U	1.	ug/kg	86		77-120		
Ethylbenzene	1	U	1.	ug/kg	95		80-120		
Freon 113	2	U	2.	ug/kg	93		61-126		
Hexachlorobutadiene	2	U	2.	ug/kg	112		57-120		
2-Hexanone	3	U	3.	ug/kg	79		45-155		
Isopropylbenzene	1	U	1.	ug/kg	100		76-120		
p-Isopropyltoluene	1	U	1.	ug/kg	96		75-120		

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280063
Reported: 12/23/11 at 09:50 AM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Methyl Acetate	2	U	2.	ug/kg	92		61-152		
Methyl Tertiary Butyl Ether	0.5	U	0.5	ug/kg	93		74-121		
4-Methyl-2-pentanone	3	U	3.	ug/kg	88		61-134		
Methylcyclohexane	1	U	1.	ug/kg	87		57-138		
Methylene Chloride	2	U	2.	ug/kg	88		76-124		
Naphthalene	1	U	1.	ug/kg	91		59-123		
n-Propylbenzene	1	U	1.	ug/kg	91		77-120		
Styrene	1	U	1.	ug/kg	95		76-120		
1,1,1,2-Tetrachloroethane	1	U	1.	ug/kg	100		80-120		
1,1,2,2-Tetrachloroethane	1	U	1.	ug/kg	75		71-123		
Tetrachloroethene	1	U	1.	ug/kg	109		77-120		
Toluene	1	U	1.	ug/kg	91		80-120		
1,2,3-Trichlorobenzene	1	U	1.	ug/kg	103		64-120		
1,2,4-Trichlorobenzene	1	U	1.	ug/kg	98		68-120		
1,1,1-Trichloroethane	1	U	1.	ug/kg	105		71-125		
1,1,2-Trichloroethane	1	U	1.	ug/kg	88		80-120		
Trichloroethene	1	U	1.	ug/kg	92		80-120		
Trichlorofluoromethane	2	U	2.	ug/kg	110		58-133		
1,2,3-Trichloropropane	1	U	1.	ug/kg	86		71-123		
1,2,4-Trimethylbenzene	1	U	1.	ug/kg	92		79-120		
1,3,5-Trimethylbenzene	1	U	1.	ug/kg	93		78-120		
Vinyl Acetate	2	U	2.	ug/kg	80		56-137		
Vinyl Chloride	1	U	1.	ug/kg	78		53-120		
m+p-Xylene	1	U	1.	ug/kg	96		80-120		
o-Xylene	1	U	1.	ug/kg	93		80-120		
Batch number: R113491AA	Sample number(s): 6493529								
Acetone	350	U	350.	ug/kg	68	71	32-209	5	30
Benzene	25	U	25.	ug/kg	99	103	80-120	4	30
Bromobenzene	50	U	50.	ug/kg	96	98	79-120	2	30
Bromochloromethane	50	U	50.	ug/kg	100	105	79-124	5	30
Bromodichloromethane	50	U	50.	ug/kg	88	90	78-120	3	30
Bromoform	50	U	50.	ug/kg	80	82	70-120	3	30
Bromomethane	100	U	100.	ug/kg	63	66	32-162	4	30
2-Butanone	200	U	200.	ug/kg	73	74	46-153	1	30
n-Butylbenzene	50	U	50.	ug/kg	89	94	72-120	5	30
sec-Butylbenzene	50	U	50.	ug/kg	86	92	75-120	7	30
tert-Butylbenzene	50	U	50.	ug/kg	87	91	75-120	5	30
Carbon Disulfide	50	U	50.	ug/kg	100	104	67-122	4	30
Carbon Tetrachloride	50	U	50.	ug/kg	83	84	69-122	1	30
Chlorobenzene	50	U	50.	ug/kg	92	95	80-120	3	30
Chloroethane	100	U	100.	ug/kg	67	65	37-154	2	30
Chloroform	50	U	50.	ug/kg	94	95	80-120	0	30
Chloromethane	100	U	100.	ug/kg	77	76	54-132	0	30
2-Chlorotoluene	50	U	50.	ug/kg	93	97	78-120	4	30
4-Chlorotoluene	50	U	50.	ug/kg	94	98	79-120	4	30
Cyclohexane	50	U	50.	ug/kg	83	85	62-121	2	30
1,2-Dibromo-3-chloropropane	100	U	100.	ug/kg	71	72	58-120	2	30
Dibromochloromethane	50	U	50.	ug/kg	88	90	77-120	2	30
1,2-Dibromoethane	50	U	50.	ug/kg	92	96	80-120	3	30
Dibromomethane	50	U	50.	ug/kg	95	97	80-120	3	30
1,2-Dichlorobenzene	50	U	50.	ug/kg	91	93	79-120	2	30
1,3-Dichlorobenzene	50	U	50.	ug/kg	91	94	78-120	4	30
1,4-Dichlorobenzene	50	U	50.	ug/kg	90	93	79-120	3	30
Dichlorodifluoromethane	100	U	100.	ug/kg	51	45	20-120	12	30
1,1-Dichloroethane	50	U	50.	ug/kg	99	102	80-120	3	30
1,2-Dichloroethane	50	U	50.	ug/kg	88	91	71-129	3	30
1,1-Dichloroethene	50	U	50.	ug/kg	105	105	73-123	0	30

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280063
Reported: 12/23/11 at 09:50 AM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
cis-1,2-Dichloroethene	50	U	50.	ug/kg	99	101	80-120	2	30
trans-1,2-Dichloroethene	50	U	50.	ug/kg	102	103	79-120	1	30
1,2-Dichloropropane	50	U	50.	ug/kg	101	103	80-120	2	30
1,3-Dichloropropane	50	U	50.	ug/kg	94	98	80-120	4	30
2,2-Dichloropropane	50	U	50.	ug/kg	89	92	72-123	3	30
1,1-Dichloropropene	50	U	50.	ug/kg	92	92	77-120	0	30
cis-1,3-Dichloropropene	50	U	50.	ug/kg	91	95	80-120	4	30
trans-1,3-Dichloropropene	50	U	50.	ug/kg	92	94	77-120	2	30
Ethylbenzene	50	U	50.	ug/kg	87	89	80-120	2	30
Freon 113	100	U	100.	ug/kg	88	89	61-126	1	30
Hexachlorobutadiene	100	U	100.	ug/kg	66	76	57-120	14	30
2-Hexanone	150	U	150.	ug/kg	70	73	45-155	5	30
Isopropylbenzene	50	U	50.	ug/kg	79	81	76-120	3	30
p-Isopropyltoluene	50	U	50.	ug/kg	84	90	75-120	7	30
Methyl Acetate	100	U	100.	ug/kg	117	122	61-152	4	30
Methyl Tertiary Butyl Ether	25	U	25.	ug/kg	96	98	74-121	3	30
4-Methyl-2-pentanone	150	U	150.	ug/kg	85	89	61-134	5	30
Methylcyclohexane	50	U	50.	ug/kg	77	83	57-138	7	30
Methylene Chloride	100	U	100.	ug/kg	104	108	76-124	4	30
Naphthalene	50	U	50.	ug/kg	67	73	59-123	8	30
n-Propylbenzene	50	U	50.	ug/kg	90	95	77-120	5	30
Styrene	50	U	50.	ug/kg	86	88	76-120	2	30
1,1,1,2-Tetrachloroethane	50	U	50.	ug/kg	88	90	80-120	3	30
1,1,2,2-Tetrachloroethane	50	U	50.	ug/kg	98	102	71-123	4	30
Tetrachloroethene	50	U	50.	ug/kg	85	87	77-120	2	30
Toluene	50	U	50.	ug/kg	95	99	80-120	3	30
1,2,3-Trichlorobenzene	50	U	50.	ug/kg	64	78	64-120	20	30
1,2,4-Trichlorobenzene	50	U	50.	ug/kg	72	84	68-120	16	30
1,1,1-Trichloroethane	50	U	50.	ug/kg	88	91	71-125	3	30
1,1,2-Trichloroethane	50	U	50.	ug/kg	96	98	80-120	3	30
Trichloroethene	50	U	50.	ug/kg	92	95	80-120	2	30
Trichlorofluoromethane	100	U	100.	ug/kg	62	59	58-133	5	30
1,2,3-Trichloropropane	50	U	50.	ug/kg	95	97	71-123	3	30
1,2,4-Trimethylbenzene	50	U	50.	ug/kg	88	90	79-120	3	30
1,3,5-Trimethylbenzene	50	U	50.	ug/kg	87	91	78-120	5	30
Vinyl Chloride	50	U	50.	ug/kg	78	76	53-120	2	30
m+p-Xylene	50	U	50.	ug/kg	88	90	80-120	3	30
o-Xylene	50	U	50.	ug/kg	88	89	80-120	2	30
Batch number: Y113483AA	Sample number(s): 6493539								
Acetone	6	U	6.	ug/l	144	146	49-234	1	30
Benzene	0.5	U	0.5	ug/l	104	104	79-120	0	30
Bromobenzene	1	U	1.	ug/l	107	109	80-120	2	30
Bromochloromethane	1	U	1.	ug/l	93	95	80-120	1	30
Bromodichloromethane	1	U	1.	ug/l	88	89	80-120	1	30
Bromoform	1	U	1.	ug/l	86	86	61-120	0	30
Bromomethane	1	U	1.	ug/l	67	64	44-120	5	30
2-Butanone	3	U	3.	ug/l	118	121	66-151	3	30
n-Butylbenzene	1	U	1.	ug/l	111	112	74-120	0	30
sec-Butylbenzene	1	U	1.	ug/l	114	117	78-120	2	30
tert-Butylbenzene	1	U	1.	ug/l	100	101	80-120	1	30
Carbon Disulfide	1	U	1.	ug/l	90	89	62-120	1	30
Carbon Tetrachloride	1	U	1.	ug/l	85	84	75-123	1	30
Chlorobenzene	0.8	U	0.8	ug/l	100	100	80-120	1	30
Chloroethane	1	U	1.	ug/l	68	65	49-129	3	30
Chloroform	0.8	U	0.8	ug/l	98	99	77-122	0	30
Chloromethane	1	U	1.	ug/l	87	87	60-129	0	30
2-Chlorotoluene	1	U	1.	ug/l	110	111	80-120	1	30

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280063
Reported: 12/23/11 at 09:50 AM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
4-Chlorotoluene	1	U	1.	ug/l	106	106	80-120	0	30
Cyclohexane	2	U	2.	ug/l	105	105	65-125	1	30
1,2-Dibromo-3-chloropropane	2	U	2.	ug/l	103	105	56-126	2	30
Dibromochloromethane	1	U	1.	ug/l	92	93	80-120	1	30
1,2-Dibromoethane	1	U	1.	ug/l	102	101	80-120	0	30
Dibromomethane	1	U	1.	ug/l	95	94	80-120	1	30
1,2-Dichlorobenzene	1	U	1.	ug/l	104	104	80-120	1	30
1,3-Dichlorobenzene	1	U	1.	ug/l	107	107	80-120	0	30
1,4-Dichlorobenzene	1	U	1.	ug/l	104	105	80-120	1	30
Dichlorodifluoromethane	2	U	2.	ug/l	78	79	47-120	1	30
1,1-Dichloroethane	1	U	1.	ug/l	98	99	79-120	1	30
1,2-Dichloroethane	1	U	1.	ug/l	91	90	70-130	1	30
1,1-Dichloroethene	0.8	U	0.8	ug/l	94	93	74-123	1	30
cis-1,2-Dichloroethene	0.8	U	0.8	ug/l	101	101	80-120	0	30
trans-1,2-Dichloroethene	0.8	U	0.8	ug/l	99	101	80-120	2	30
1,2-Dichloropropane	1	U	1.	ug/l	101	101	78-120	0	30
1,3-Dichloropropane	1	U	1.	ug/l	102	103	80-120	2	30
2,2-Dichloropropane	1	U	1.	ug/l	87	87	77-124	1	30
1,1-Dichloropropene	1	U	1.	ug/l	97	98	80-120	1	30
cis-1,3-Dichloropropene	1	U	1.	ug/l	94	95	80-120	1	30
trans-1,3-Dichloropropene	1	U	1.	ug/l	94	95	79-120	1	30
Ethylbenzene	0.8	U	0.8	ug/l	101	101	79-120	0	30
Freon 113	2	U	2.	ug/l	95	94	69-128	1	30
Hexachlorobutadiene	2	U	2.	ug/l	93	95	58-120	2	30
2-Hexanone	3	U	3.	ug/l	107	111	65-136	3	30
Isopropylbenzene	1	U	1.	ug/l	98	99	77-120	1	30
p-Isopropyltoluene	1	U	1.	ug/l	109	109	80-120	0	30
Methyl Acetate	1	U	1.	ug/l	117	116	64-151	1	30
Methyl Tertiary Butyl Ether	0.5	U	0.5	ug/l	98	100	76-120	2	30
4-Methyl-2-pentanone	3	U	3.	ug/l	101	101	70-121	0	30
Methylcyclohexane	1	U	1.	ug/l	103	104	71-132	1	30
Methylene Chloride	2	U	2.	ug/l	110	108	80-120	2	30
Naphthalene	1	U	1.	ug/l	103	104	62-120	1	30
n-Propylbenzene	1	U	1.	ug/l	121*	122*	80-120	1	30
Styrene	1	U	1.	ug/l	93	94	80-120	1	30
1,1,1,2-Tetrachloroethane	1	U	1.	ug/l	90	91	80-120	1	30
1,1,2,2-Tetrachloroethane	1	U	1.	ug/l	120	122*	71-120	1	30
Tetrachloroethene	0.8	U	0.8	ug/l	91	91	80-121	1	30
Toluene	0.7	U	0.7	ug/l	105	104	79-120	0	30
1,2,3-Trichlorobenzene	1	U	1.	ug/l	101	101	65-120	1	30
1,2,4-Trichlorobenzene	1	U	1.	ug/l	99	101	67-120	2	30
1,1,1-Trichloroethane	0.8	U	0.8	ug/l	91	91	75-127	0	30
1,1,2-Trichloroethane	0.8	U	0.8	ug/l	102	105	80-120	3	30
Trichloroethene	1	U	1.	ug/l	97	98	80-120	1	30
Trichlorofluoromethane	2	U	2.	ug/l	86	85	64-129	1	30
1,2,3-Trichloropropane	1	U	1.	ug/l	114	114	80-120	0	30
1,2,4-Trimethylbenzene	1	U	1.	ug/l	115	114	74-120	0	30
1,3,5-Trimethylbenzene	1	U	1.	ug/l	112	112	75-120	0	30
Vinyl Acetate	2	U	2.	ug/l	102	102	57-147	0	30
Vinyl Chloride	1	U	1.	ug/l	87	87	65-125	0	30
m+p-Xylene	0.8	U	0.8	ug/l	96	97	80-120	1	30
o-Xylene	0.8	U	0.8	ug/l	95	96	80-120	1	30
Batch number: 11344SLD026	Sample number(s): 6493529-6493533,6493535-6493538								
Acenaphthene	3	U	3.	ug/kg	99		83-111		
Acenaphthylene	3	U	3.	ug/kg	109		68-120		
Anthracene	3	U	3.	ug/kg	103		83-111		
Benzo(a)anthracene	3	U	3.	ug/kg	100		82-111		

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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280063
Reported: 12/23/11 at 09:50 AM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Benzo(a)pyrene	3	U	3.	ug/kg	107		63-138		
Benzo(b)fluoranthene	3	U	3.	ug/kg	112		61-133		
Benzo(g,h,i)perylene	3	U	3.	ug/kg	97		63-130		
Benzo(k)fluoranthene	3	U	3.	ug/kg	99		71-135		
Benzyl alcohol	170	U	170.	ug/kg	94		68-111		
1,1'-Biphenyl	17	U	17.	ug/kg	96		82-106		
4-Bromophenyl-phenylether	17	U	17.	ug/kg	99		79-117		
Butylbenzylphthalate	67	U	67.	ug/kg	101		77-125		
Di-n-butylphthalate	67	U	67.	ug/kg	104		79-112		
Carbazole	17	U	17.	ug/kg	100		83-111		
4-Chloro-3-methylphenol	17	U	17.	ug/kg	97		74-119		
4-Chloroaniline	17	U	17.	ug/kg	34		10-97		
bis(2-Chloroethoxy)methane	17	U	17.	ug/kg	95		82-113		
bis(2-Chloroethyl)ether	17	U	17.	ug/kg	91		77-115		
2-Chloronaphthalene	7	U	7.	ug/kg	127*		50-117		
2-Chlorophenol	17	U	17.	ug/kg	99		83-119		
4-Chlorophenyl-phenylether	17	U	17.	ug/kg	102		79-110		
Chrysene	3	U	3.	ug/kg	97		81-111		
Dibenz(a,h)anthracene	3	U	3.	ug/kg	102		67-129		
Dibenzofuran	17	U	17.	ug/kg	96		85-110		
3,3'-Dichlorobenzidine	100	U	100.	ug/kg	40		17-116		
2,4-Dichlorophenol	17	U	17.	ug/kg	103		87-117		
Diethylphthalate	67	U	67.	ug/kg	102		82-113		
2,4-Dimethylphenol	17	U	17.	ug/kg	99		83-120		
Dimethylphthalate	67	U	67.	ug/kg	102		85-111		
4,6-Dinitro-2-methylphenol	170	U	170.	ug/kg	84		60-113		
2,4-Dinitrophenol	330	U	330.	ug/kg	61		39-126		
2,4-Dinitrotoluene	67	U	67.	ug/kg	106		80-116		
2,6-Dinitrotoluene	17	U	17.	ug/kg	107		79-115		
1,4-Dioxane	100	U	100.	ug/kg	50		38-75		
bis(2-Ethylhexyl)phthalate	67	U	67.	ug/kg	101		75-124		
Fluoranthene	3	U	3.	ug/kg	104		80-113		
Fluorene	3	U	3.	ug/kg	101		81-117		
Hexachlorobenzene	3	U	3.	ug/kg	103		79-115		
Hexachlorocyclopentadiene	170	U	170.	ug/kg	110		64-127		
Hexachloroethane	33	U	33.	ug/kg	87		76-109		
Indeno(1,2,3-cd)pyrene	3	U	3.	ug/kg	101		64-128		
Isophorone	17	U	17.	ug/kg	92		72-107		
2-Methylnaphthalene	3	U	3.	ug/kg	96		79-110		
2-Methylphenol	17	U	17.	ug/kg	95		80-119		
4-Methylphenol	17	U	17.	ug/kg	90		74-116		
2-Nitroaniline	17	U	17.	ug/kg	106		83-118		
3-Nitroaniline	67	U	67.	ug/kg	94		66-114		
4-Nitroaniline	67	U	67.	ug/kg	74		52-92		
Nitrobenzene	17	U	17.	ug/kg	96		78-122		
2-Nitrophenol	17	U	17.	ug/kg	100		81-114		
4-Nitrophenol	170	U	170.	ug/kg	81		57-131		
N-Nitroso-di-n-propylamine	17	U	17.	ug/kg	83		70-113		
N-Nitrosodiphenylamine	17	U	17.	ug/kg	104		86-112		
Di-n-octylphthalate	67	U	67.	ug/kg	113		65-141		
Pentachlorophenol	33	U	33.	ug/kg	88		50-133		
Phenanthrene	3	U	3.	ug/kg	98		83-109		
Phenol	17	U	17.	ug/kg	92		74-115		
Pyrene	3	U	3.	ug/kg	96		80-121		
2,4,5-Trichlorophenol	17	U	17.	ug/kg	106		84-109		
2,4,6-Trichlorophenol	17	U	17.	ug/kg	105		88-114		

Batch number: 11344WAH026 Sample number(s): 6493540

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280063
Reported: 12/23/11 at 09:50 AM

Analysis Name	Blank Result		Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Acenaphthene	0.1	U	0.1	ug/l	98	97	75-114	1	30
Acenaphthylene	0.1	U	0.1	ug/l	112	107	80-122	4	30
Anthracene	0.1	U	0.1	ug/l	102	106	76-115	4	30
Benzo(a)anthracene	0.1	U	0.1	ug/l	102	101	75-116	1	30
Benzo(a)pyrene	0.1	U	0.1	ug/l	105	106	64-126	1	30
Benzo(b)fluoranthene	0.1	U	0.1	ug/l	106	102	66-125	4	30
Benzo(g,h,i)perylene	0.1	U	0.1	ug/l	105	106	66-132	1	30
Benzo(k)fluoranthene	0.1	U	0.1	ug/l	105	101	66-131	4	30
Benzyl alcohol	5	U	5.	ug/l	84	82	66-97	3	30
1,1'-Biphenyl	0.5	U	0.5	ug/l	97	96	80-109	1	30
4-Bromophenyl-phenylether	0.5	U	0.5	ug/l	96	101	75-115	5	30
Butylbenzylphthalate	2	U	2.	ug/l	101	101	77-115	0	30
Di-n-butylphthalate	2	U	2.	ug/l	104	106	76-115	2	30
Carbazole	0.5	U	0.5	ug/l	104	105	75-120	0	30
4-Chloro-3-methylphenol	0.5	U	0.5	ug/l	98	94	70-123	4	30
4-Chloroaniline	0.5	U	0.5	ug/l	92	81	24-128	13	30
bis(2-Chloroethoxy)methane	0.5	U	0.5	ug/l	96	96	74-124	0	30
bis(2-Chloroethyl)ether	0.5	U	0.5	ug/l	93	97	77-108	4	30
2-Chloronaphthalene	0.4	U	0.4	ug/l	75	78	54-132	4	30
2-Chlorophenol	0.5	U	0.5	ug/l	94	94	71-114	0	30
4-Chlorophenyl-phenylether	0.5	U	0.5	ug/l	100	99	77-114	1	30
Chrysene	0.1	U	0.1	ug/l	99	98	76-116	1	30
Dibenz(a,h)anthracene	0.1	U	0.1	ug/l	104	105	67-131	1	30
Dibenzofuran	0.5	U	0.5	ug/l	98	95	75-117	3	30
3,3'-Dichlorobenzidine	2	U	2.	ug/l	83	73	37-117	12	30
2,4-Dichlorophenol	0.5	U	0.5	ug/l	100	98	77-117	2	30
Diethylphthalate	2	U	2.	ug/l	102	99	66-116	4	30
2,4-Dimethylphenol	0.5	U	0.5	ug/l	97	95	72-110	2	30
Dimethylphthalate	2	U	2.	ug/l	101	98	39-126	3	30
4,6-Dinitro-2-methylphenol	5	U	5.	ug/l	106	107	65-126	1	30
2,4-Dinitrophenol	10	U	10.	ug/l	98	95	52-131	3	30
2,4-Dinitrotoluene	1	U	1.	ug/l	106	101	76-119	5	30
2,6-Dinitrotoluene	0.5	U	0.5	ug/l	107	102	76-118	4	30
1,4-Dioxane	1	U	1.	ug/l	57	56	32-78	1	30
bis(2-Ethylhexyl)phthalate	2	U	2.	ug/l	101	100	78-117	1	30
Fluoranthene	0.1	U	0.1	ug/l	109	110	76-119	1	30
Fluorene	0.1	U	0.1	ug/l	102	101	76-116	1	30
Hexachlorobenzene	0.1	U	0.1	ug/l	101	106	75-119	5	30
Hexachlorocyclopentadiene	5	U	5.	ug/l	78	81	36-118	4	30
Hexachloroethane	1	U	1.	ug/l	90	94	52-113	4	30
Indeno(1,2,3-cd)pyrene	0.1	U	0.1	ug/l	104	102	69-121	3	30
Isophorone	0.5	U	0.5	ug/l	99	99	74-117	1	30
2-Methylnaphthalene	0.1	U	0.1	ug/l	96	95	69-108	1	30
2-Methylphenol	0.5	U	0.5	ug/l	92	93	58-110	1	30
4-Methylphenol	0.5	U	0.5	ug/l	86	84	49-108	3	30
2-Nitroaniline	0.5	U	0.5	ug/l	106	101	75-120	5	30
3-Nitroaniline	0.5	U	0.5	ug/l	102	99	74-113	3	30
4-Nitroaniline	0.5	U	0.5	ug/l	89	80	59-100	10	30
Nitrobenzene	0.5	U	0.5	ug/l	98	98	75-109	0	30
2-Nitrophenol	0.5	U	0.5	ug/l	100	100	76-118	0	30
4-Nitrophenol	10	U	10.	ug/l	45	42	16-78	7	30
N-Nitroso-di-n-propylamine	0.5	U	0.5	ug/l	88	88	69-110	1	30
N-Nitrosodiphenylamine	0.5	U	0.5	ug/l	100	104	67-136	4	30
Di-n-octylphthalate	2	U	2.	ug/l	105	104	68-128	1	30
Pentachlorophenol	1	U	1.	ug/l	101	105	53-110	3	30
Phenanthrene	0.1	U	0.1	ug/l	102	103	76-113	1	30
Phenol	0.5	U	0.5	ug/l	53	52	21-67	2	30
Pyrene	0.1	U	0.1	ug/l	99	98	75-119	1	30

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(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280063
Reported: 12/23/11 at 09:50 AM

Analysis Name	Blank Result	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
2,4,5-Trichlorophenol	0.5 U	0.5	ug/l	106	101	79-107	5	30
2,4,6-Trichlorophenol	0.5 U	0.5	ug/l	105	100	76-120	5	30
Batch number: 113431026002A	Sample number(s): 6493529-6493538							
Arsenic	0.0800 U	0.0800	mg/kg	105		83-111		
Batch number: 113435705003	Sample number(s): 6493540							
Barium	0.00026 U	0.00026	mg/l	103		90-110		
Cadmium	0.00027 U	0.00027	mg/l	104		90-112		
Chromium	0.0011 U	0.0011	mg/l	101		90-110		
Lead	0.0022 U	0.0022	mg/l	103		88-110		
Selenium	0.0069 U	0.0069	mg/l	101		80-120		
Silver	0.00091 U	0.00091	mg/l	109		83-120		
Batch number: 113435708002	Sample number(s): 6493529-6493538							
Barium	0.0350 J	0.0180	mg/kg	107		89-112		
Cadmium	0.0200 U	0.0200	mg/kg	106		88-117		
Chromium	0.140 U	0.140	mg/kg	109		80-111		
Lead	0.220 U	0.220	mg/kg	104		90-115		
Selenium	0.680 U	0.680	mg/kg	104		83-111		
Silver	0.0830 U	0.0830	mg/kg	107		86-112		
Batch number: 113435711002	Sample number(s): 6493529-6493538							
Mercury	0.0069 U	0.0069	mg/kg	107		83-119		
Batch number: 113475713004	Sample number(s): 6493540							
Mercury	0.000026 U	0.00002 6	mg/l	93		80-120		
Batch number: 113486050002A	Sample number(s): 6493540							
Arsenic	0.00095 U	0.00095	mg/l	100		86-111		
Batch number: 11343820002B	Sample number(s): 6493529-6493538							
Moisture				100		99-101		
Moisture				100		99-101		
Moisture Duplicate				100		99-101		

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: A113461AA	Sample number(s): 6493529-6493533,6493535-6493538 UNSPK: 6493531								
Acetone	133	118	31-195	14	30				
Benzene	103	99	55-143	7	30				
Bromobenzene	111	105	43-139	9	30				
Bromochloromethane	112	114	60-137	1	30				
Bromodichloromethane	105	100	53-136	8	30				
Bromoform	114	102	38-124	14	30				
Bromomethane	115	117	42-168	1	30				
2-Butanone	130	117	37-163	14	30				
n-Butylbenzene	100	93	30-146	12	30				

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280063
Reported: 12/23/11 at 09:50 AM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
sec-Butylbenzene	110	105	33-157	8	30				
tert-Butylbenzene	112	108	41-152	7	30				
Carbon Disulfide	93	91	48-146	5	30				
Carbon Tetrachloride	129	121	45-153	9	30				
Chlorobenzene	108	102	49-135	9	30				
Chloroethane	102	104	39-152	1	30				
Chloroform	112	108	61-142	7	30				
Chloromethane	94	96	51-163	1	30				
2-Chlorotoluene	106	100	42-146	9	30				
4-Chlorotoluene	106	102	39-145	7	30				
Cyclohexane	104	101	57-151	6	30				
1,2-Dibromo-3-chloropropane	125	107	30-139	19	30				
Dibromochloromethane	110	104	51-128	9	30				
1,2-Dibromoethane	110	103	54-129	10	30				
Dibromomethane	104	98	57-130	9	30				
1,2-Dichlorobenzene	106	98	36-133	11	30				
1,3-Dichlorobenzene	107	101	34-134	10	30				
1,4-Dichlorobenzene	107	100	35-136	10	30				
Dichlorodifluoromethane	118	117	26-151	4	30				
1,1-Dichloroethane	108	103	63-142	8	30				
1,2-Dichloroethane	126	116	68-131	12	30				
1,1-Dichloroethene	107	106	61-149	5	30				
cis-1,2-Dichloroethene	104	100	60-136	7	30				
trans-1,2-Dichloroethene	106	103	59-142	7	30				
1,2-Dichloropropane	93	88	62-135	8	30				
1,3-Dichloropropane	101	96	58-129	8	30				
2,2-Dichloropropane	117	112	53-147	8	30				
1,1-Dichloropropene	111	107	54-145	7	30				
cis-1,3-Dichloropropene	94	90	51-131	7	30				
trans-1,3-Dichloropropene	100	96	49-129	7	30				
Ethylbenzene	109	104	44-141	8	30				
Freon 113	116	110	56-156	9	30				
Hexachlorobutadiene	117	108	10-155	11	30				
2-Hexanone	110	99	32-160	14	30				
Isopropylbenzene	115	108	38-144	10	30				
p-Isopropyltoluene	112	102	29-152	13	30				
Methyl Acetate	130	127	48-161	5	30				
Methyl Tertiary Butyl Ether	109	102	55-129	9	30				
4-Methyl-2-pentanone	125	111	46-139	15	30				
Methylcyclohexane	112	115	39-168	1	30				
Methylene Chloride	103	95	61-141	11	30				
Naphthalene	97	77	10-138	26	30				
n-Propylbenzene	108	102	39-157	9	30				
Styrene	32*	13*	35-134	88*	30				
1,1,1,2-Tetrachloroethane	114	109	52-130	8	30				
1,1,2,2-Tetrachloroethane	98	92	40-152	9	30				
Tetrachloroethene	127	121	42-149	8	30				
Toluene	105	100	50-146	8	30				
1,2,3-Trichlorobenzene	103	89	10-140	18	30				
1,2,4-Trichlorobenzene	98	86	10-136	16	30				
1,1,1-Trichloroethane	125	119	64-142	8	30				
1,1,2-Trichloroethane	103	97	54-139	9	30				
Trichloroethene	109	103	53-144	10	30				

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280063
Reported: 12/23/11 at 09:50 AM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Trichlorofluoromethane	142	141	47-163	4	30				
1,2,3-Trichloropropane	114	107	45-154	10	30				
1,2,4-Trimethylbenzene	107	94	37-149	16	30				
1,3,5-Trimethylbenzene	109	103	38-150	9	30				
Vinyl Acetate	51	69	21-139	30	30				
Vinyl Chloride	99	100	50-154	2	30				
m+p-Xylene	109	103	44-137	10	30				
o-Xylene	103	98	42-137	9	30				
Batch number: 11344SLD026	Sample number(s): 6493529-6493533,6493535-6493538 UNSPK: 6493531								
Acenaphthene	92	93	41-135	1	30				
Acenaphthylene	102	103	47-137	2	30				
Anthracene	95	97	40-147	2	30				
Benzo(a)anthracene	89	90	32-150	1	30				
Benzo(a)pyrene	98	99	57-129	1	30				
Benzo(b)fluoranthene	100	100	53-131	0	30				
Benzo(g,h,i)perylene	88	88	60-123	0	30				
Benzo(k)fluoranthene	100	99	61-131	1	30				
Benzyl alcohol	94	99	63-128	5	30				
1,1'-Biphenyl	89	90	51-127	1	30				
4-Bromophenyl-phenylether	92	96	46-131	4	30				
Butylbenzylphthalate	92	93	26-161	1	30				
Di-n-butylphthalate	93	97	32-139	4	30				
Carbazole	91	93	36-148	2	30				
4-Chloro-3-methylphenol	93	96	33-144	3	30				
4-Chloroaniline	83	84	11-114	1	30				
bis(2-Chloroethoxy)methane	90	91	44-132	2	30				
bis(2-Chloroethyl)ether	87	90	45-139	4	30				
2-Chloronaphthalene	119	118	22-131	0	30				
2-Chlorophenol	95	100	29-151	5	30				
4-Chlorophenyl-phenylether	95	98	42-130	4	30				
Chrysene	89	90	76-114	1	30				
Dibenz(a,h)anthracene	92	92	37-151	0	30				
Dibenzofuran	90	91	38-148	2	30				
3,3'-Dichlorobenzidine	75	71	10-143	6	30				
2,4-Dichlorophenol	98	101	35-142	2	30				
Diethylphthalate	94	96	32-137	2	30				
2,4-Dimethylphenol	88	88	27-143	1	30				
Dimethylphthalate	95	96	26-141	1	30				
4,6-Dinitro-2-methylphenol	82	63	10-148	27	30				
2,4-Dinitrophenol	63	39	20-143	46*	30				
2,4-Dinitrotoluene	99	101	27-147	2	30				
2,6-Dinitrotoluene	100	102	44-140	1	30				
1,4-Dioxane	45	52	31-77	13	30				
bis(2-Ethylhexyl)phthalate	93	94	38-151	1	30				
Fluoranthene	94	95	48-122	1	30				
Fluorene	94	96	35-140	2	30				
Hexachlorobenzene	94	98	53-137	4	30				
Hexachlorocyclopentadiene	95	95	10-153	0	30				
Hexachloroethane	80	85	71-104	6	30				
Indeno(1,2,3-cd)pyrene	91	91	61-123	0	30				
Isophorone	88	90	54-122	2	30				
2-Methylnaphthalene	91	93	23-141	2	30				

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280063
Reported: 12/23/11 at 09:50 AM

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
2-Methylphenol	92	96	30-145	4	30				
4-Methylphenol	90	95	36-149	5	30				
2-Nitroaniline	100	102	46-146	2	30				
3-Nitroaniline	93	96	34-134	3	30				
4-Nitroaniline	83	85	26-124	2	30				
Nitrobenzene	90	92	37-139	2	30				
2-Nitrophenol	94	98	25-151	4	30				
4-Nitrophenol	78	75	15-149	3	30				
N-Nitroso-di-n-propylamine	81	85	46-128	5	30				
N-Nitrosodiphenylamine	93	95	33-148	2	30				
Di-n-octylphthalate	110	112	43-149	2	30				
Pentachlorophenol	81	78	23-145	3	30				
Phenanthrene	90	93	34-147	3	30				
Phenol	90	95	39-151	5	30				
Pyrene	90	91	76-124	1	30				
2,4,5-Trichlorophenol	99	100	25-143	1	30				
2,4,6-Trichlorophenol	97	100	41-142	3	30				
Batch number: 113431026002A	Sample number(s): 6493529-6493538 UNSPK: 6493531 BKG: 6493531								
Arsenic	153 (2)	130 (2)	75-125	3	20	13.1	13.1	1	20
Batch number: 113435705003	Sample number(s): 6493540 UNSPK: P492484 BKG: P492484								
Barium	101	103	78-118	2	20	0.0153	0.0154	1 (1)	20
Cadmium	103	104	83-116	1	20	0.00027 U	0.00027 U	0 (1)	20
Chromium	98	101	81-120	4	20	0.0013 J	0.0015 J	15 (1)	20
Lead	102	104	75-125	2	20	0.0022 U	0.0022 U	0 (1)	20
Selenium	103	102	75-125	1	20	0.0069 U	0.0069 U	0 (1)	20
Silver	108	108	75-125	0	20	0.00091 U	0.00091 U	0 (1)	20
Batch number: 113435708002	Sample number(s): 6493529-6493538 UNSPK: 6493531 BKG: 6493531								
Barium	121	101	75-125	11	20	150	157	5	20
Cadmium	96	97	75-125	1	20	1.23	1.26	2 (1)	20
Chromium	127*	135*	75-125	4	20	17.4	17.6	1	20
Lead	101	107	75-125	3	20	8.25	8.50	3	20
Selenium	92	96	75-125	4	20	0.978 J	0.859 J	13 (1)	20
Silver	101	100	75-125	1	20	0.0822 U	0.0806 U	0 (1)	20
Batch number: 113435711002	Sample number(s): 6493529-6493538 UNSPK: 6493531 BKG: 6493531								
Mercury	104	115	80-120	7	20	0.0255 J	0.0249 J	2 (1)	20
Batch number: 113475713004	Sample number(s): 6493540 UNSPK: P496150 BKG: P496150								
Mercury	86	88	80-120	1	20	0.000026 U	0.000026 U	0 (1)	20
Batch number: 113486050002A	Sample number(s): 6493540 UNSPK: P497550 BKG: P497550								
Arsenic	99	93	75-125	6	20	0.00095 U	0.00095 U	0 (1)	20
Batch number: 11343820002B	Sample number(s): 6493529-6493538 BKG: 6493531								
Moisture						18.0	18.4	2	15
Moisture						18.0	18.4	2	15
Moisture Duplicate						18.0	18.4	2	15

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280063
Reported: 12/23/11 at 09:50 AM

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 8260 Ext. Soil Master
Batch number: A113461AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
6493529	106	101	101	107
6493530	100	102	100	89
6493531	107	102	98	90
6493532	105	105	101	95
6493533	105	101	101	94
6493535	106	107	97	90
6493536	106	107	97	91
6493537	106	101	98	90
6493538	106	101	98	91
Blank	107	102	97	90
LCS	106	99	101	97
MS	105	105	101	95
MSD	105	101	101	94
Limits:	71-114	70-109	70-123	70-111

Analysis Name: 8260 Ext. Soil Master
Batch number: R113491AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
6493529	79	82	78	70
DL				
Blank	85	89	85	76
LCS	92	94	93	80
LCSD	94	98	94	80
Limits:	71-114	70-109	70-123	70-111

Analysis Name: 8260 Ext. Water Master
Batch number: Y113483AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
6493539	93	99	100	93
Blank	93	98	100	94
LCS	92	100	102	100
LCSD	92	101	102	100
Limits:	80-116	77-113	80-113	78-113

Analysis Name: TCL 8270 (microwave)
Batch number: 11344SLD026

	Phenol-d6	2-Fluorophenol	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
6493529	91	95	95	87	92	101
6493529	84	89	87	82	91	103
DL						
6493530	79	82	71	78	81	90
6493531	93	95	98	86	86	98
6493532	92	95	92	87	86	96

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Quality Control Summary

Client Name: CH2M Hill, Inc. Group Number: 1280063
Reported: 12/23/11 at 09:50 AM

Surrogate Quality Control

6493533	96	98	93	87	86	97
6493535	88	92	87	86	88	99
6493536	87	88	74	85	90	97
6493537	86	88	84	87	93	102
6493538	89	93	84	85	91	101
Blank	87	94	100	86	88	101
LCS	92	98	99	91	93	103
MS	92	95	92	87	86	96
MSD	96	98	93	87	86	97
Limits:	42-130	39-136	28-139	45-123	56-121	43-124

Analysis Name: TCL SW846 Semivolatiles/Waters
Batch number: 11344WAH026

	2-Fluorophenol	Phenol-d6	2,4,6-Tribromophenol	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
6493540	64	38	99			
Blank	63	44	96	87	93	106
LCS	69	48	105	95	98	104
LCSD	68	49	97	95	97	106
Limits:	10-98	10-74	22-150	52-120	63-114	34-118

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Analysis Request/ Environmental Services Chain of Custody

Lancaster Laboratories

For Lancaster Laboratories use only

Acct. # 11372 Group# 1280063 Sample # 6493529-40

COC # 273995

Please print. Instructions on reverse side correspond with circled numbers.

(1) Client: Dow Hanging Rock Acct. #:

Project Name/#: 420671.01.FI PWSID #:

Project Manager: Mark Holland P.O.#: 420671.04

Sampler: Osaguona Ogbebor Quote #:

Name of state where samples were collected: Ohio

For Lab Use Only
FSC:
SCR#:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

(6) Temperature of samples upon receipt (if requested)

(2) Sample Identification	Date Collected	Time Collected	(3) Grab	Composite	(4) Matrix: Soil	Water (Potable / NPDES)	Other	Total # of Containers	(5) Analyses Requested / Preservation Codes: VOCs	SVOCs	Metals	Moisture Content	Remarks
S25-SS03-0810-120711	12/07/11	1505		X	X			4	✓	✓	✓	✓	
~~HGR 120711-EB01~~	~~12/07/11~~	~~1530~~		~~X~~	~~X~~	~~X~~		~~4~~	~~✓~~	~~✓~~	~~✓~~	~~✓~~	
S25-SS01-0002-120711	12/07/11	1550		X	X			4	✓	✓	✓	✓	
S25-SS01-0305-120711	12/07/11	1555		X	X			4	✓	✓	✓	✓	
S25-SS01-0810-120711	12/07/11	1600		X	X			4	✓	✓	✓	✓	
S24-SS03-0002-120711	12/07/11	1620		X	X			4	✓	✓	✓	✓	
S24-SS03-0305-120711	12/07/11	1625		X	X			4	✓	✓	✓	✓	
S24-SS03-0810-120711	12/07/11	1630		X	X			4	✓	✓	✓	✓	
120711 TB	12/01/11	—	X			X		2	✓				
HGR-120711 EB01	12/07/11	1530	X			X				X	X		

(7) **Turnaround Time Requested** (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed: NA
Rush results requested by (please circle): Phone Fax E-mail
Phone #: Fax #:
E-mail address:

(8) **Data Package Options** (please circle if required)
Type I (validation/NJ Reg)
Type II (Tier II)
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)
TX TRRP-13
MA MCP CT RCP
SDG Complete? Yes No
Site-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate volume.)
Internal COC Required? Yes / No

(9)

Relinquished by:	Date	Time	Received by:	Date	Time
Osaguona Ogbebor	12/7/11	1800			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by: Suzette Lehman	12/8/11	0950

Analysis Request/ Environmental Services Chain of Custody

Page 4 of 4

Lancaster Laboratories

For Lancaster Laboratories use only

Acct. # 11372 Group# 1280063 Sample # 6493529-40

COC # 273996

Please print. Instructions on reverse side correspond with circled numbers.

(1)
Client: Dow Hanging Rock Acct. #:
Project Name/#: 420671.01.FI PWSID #:
Project Manager: Mark Holland P.O.#: 420671.04
Sampler: Osaguona Ogbebor Quote #:
Name of state where samples were collected: Ohio

(2) Sample Identification	Date Collected	Time Collected	(3) Grab	(3) Composite	Matrix: Soil	Matrix: Water (Potable / NPDES)	Matrix: Other	(4) Total # of Containers	(5) Analyses Requested / Preservation Codes: VOCs	SVOCs	Metals	Moisture Content	Remarks
S25-SS01-0305-120711MS	12/07/11	1555		X	X			4	X	X	X	X	
S25-SS01-0305-120711MSD	12/07/11	1555		X	X			4	X	X	X	X	

For Lab Use Only
FSC:
SCR#:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

(6) Temperature of samples upon receipt (if requested)

(7) **Turnaround Time Requested** (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed: NA
Rush results requested by (please circle): Phone Fax E-mail
Phone #: Fax #:
E-mail address:

(8) **Data Package Options** (please circle if required)
Type I (validation/NJ Reg)
Type II (Tier II)
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)
TX TRRP-13
MA MCP CT RCP
SDG Complete? Yes No
Site-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate volume.)
Internal COC Required? Yes / No

(9)

Relinquished by:	Date	Time	Received by:	Date	Time
Osaguona Ogbebor	12/7/11	1800			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by: Angela Lehman	12/8/11	0950

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
ug	microgram(s)	**mg**	milligram(s)
ml	milliliter(s)	**l**	liter(s)
m3	cubic meter(s)	**ul**	microliter(s)

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

J estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike sample not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*****	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL LANCASTER LABORATORIES BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF LANCASTER LABORATORIES AND (B) WHETHER LANCASTER LABORATORIES HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Lancaster Laboratories which includes any conditions that vary from the Standard Terms and Conditions, and Lancaster hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

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Type I (No Raw Data) Data Package

Prepared for:

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

Project: Dow Hanging Rock, OH
Water and Soil Samples
Collected on 12/13/11

SDG# DHR08

GROUP	SAMPLE NUMBERS
1280964	6499033-6499052

PA Cert. # 36-00037
NY Cert. # 10670
NJ Cert. # PA011
NC Cert. # 521
TX Cert. # T104704194-08A-TX

Through our technical processes and second person review of data, we have established that our data/deliverables are in compliance with the methods and project requirements unless otherwise noted or previously resolved with the client.

Authorized by: Dana M. Kauffman **Date:** 01/20/2012

Dana M. Kauffman
Manager

Any questions or concerns you might have regarding this data package should be directed to your client representative, Wendy Kozma at Ext. 1522.

Total Number of Pages 363

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Sample Reference List for SDG Number DHR08 with a Data Package Type of I-NODATA

11372 - CH2M Hill, Inc.

Project: Dow Hanging Rock, OH

Lab Sample Number	Lab Sample Code	Client Sample Description
6499033	HGRE-	HGR-121311-EB01 Grab Water Sample
6499034	40002	S11-SS04-0002-121311 Composite Soil Sample
6499035	40305	S11-SS04-0305-121311 Composite Soil Sample
6499036	40305	S11-SS04-0305-121311MS Composite Soil Sample
6499037	40305	S11-SS04-0305-121311MSD Composite Soil Sample
6499038	40305	S11-SS04-0305-121311DUP Composite Soil Sample
6499039	40810	S11-SS04-0810-121311 Composite Soil Sample
6499040	30002	S11-SS03-0002-121311 Composite Soil Sample
6499041	30305	S11-SS03-0305-121311 Composite Soil Sample
6499042	30810	S11-SS03-0810-121311 Composite Soil Sample
6499043	20002	S11-SS02-0002-121311 Composite Soil Sample
6499044	HGRD-	HGR-121311-FD01 Composite Soil Sample
6499045	20305	S11-SS02-0305-121311 Composite Soil Sample
6499046	20810	S11-SS02-0810-121311 Composite Soil Sample
6499047	10002	S11-SS01-0002-121311 Composite Soil Sample
6499048	10308	S11-SS01-0308-121311 Composite Soil Sample
6499049	10810	S11-SS01-0810-121311 Composite Soil Sample
6499050	50002	S11-SS05-0002-121311 Composite Soil Sample
6499051	50305	S11-SS05-0305-121311 Composite Soil Sample
6499052	50810	S11-SS05-0810-121311 Composite Soil Sample

Analysis Request/ Environmental Services Chain of Custody

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1 of 4

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Acct. # 11372 Group# 1280964 Sample # 6499033-52

COC # 274007

Please print. Instructions on reverse side correspond with circled numbers.

(1) Client: DOW Hanging Rock Acct. #:

Project Name/#: 420671-01-FS PWSID #:

Project Manager: Mark Holland P.O.#: 420671-01-FS

Sampler: OSaguona Ogbebor Quote #:

Name of state where samples were collected: Ohio

For Lab Use Only
FSC:
SCR#:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

(6) Temperature of samples upon receipt (if requested)

(2) Sample Identification	Date Collected	Time Collected	(3) Grab	(3) Composite	(4) Matrix: Soil	Matrix: Water (Potable / NPDES)	Matrix: Other	Total # of Containers	(5) Analyses Requested / Preservation Codes: VOCs	SVOCs	Metals	Moisture Content	Remarks
HGR-121311-EB01	12/13/11	1230	X			X		3		V	V		
S11-SS04-0002-121311	12/13/11	0850		X				4	V	V	V	V	
S11-SS04-0305-121311	12/13/11	0855		X				4	V	V	V	V	
S11-SS04-0305-121311 MS	12/13/11	0855		X				4	V	V	V	V	
S11-SS04-0305-121311 MSD	12/13/11	0855		X				4	V	V	V	V	
S11-SS04-0810-121311	12/13/11	0900		X				4	V	V	V	V	
S11-SS03-0002-121311	12/13/11	0920		X				4	V	V	V	V	
S11-SS03-0305-121311	12/13/11	0925		X				4	V	V	V	V	
S11-SS03-0810-121811	12/13/11	0930		X				4	V	V	V	V	
S11-SS02-0002-121311	12/13/11	0955		X				4	V	V	V	V	

(7) **Turnaround Time Requested** (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed: NA
Rush results requested by (please circle): Phone Fax E-mail
Phone #: Fax #:
E-mail address:

(8) **Data Package Options** (please circle if required)
Type I (validation/NJ Reg) TX TRRP-13
Type II (Tier II) MA MCP CT RCP
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)
SDG Complete? Yes No
Site-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate volume.)
Internal COC Required? Yes / No

(9)

Relinquished by:	Date	Time	Received by:	Date	Time
OSaguona	12/13/11	1830			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	12/14/11	0926

Analysis Request/ Environmental Services Chain of Custody

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Page 2 of 4

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Acct.# 11372 Group# 1280964 Sample # 6499033-52

COC # 276344

Please print. Instructions on reverse side correspond with circled numbers.

(1) Client: Dow Hanging Rock Acct. #:

Project Name/#: 420671.01.FS PWSID #:

Project Manager: Marie Holland P.O.#: 420671-04

Sampler: Oseyuwa Ogbebor Quote #:

Name of state where samples were collected: Ohio

For Lab Use Only
FSC:
SCR#:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

(2) Sample Identification	Date Collected	Time Collected	(3) Grab	(3) Composite	(4) Matrix: Soil	Water (☐ Potable ☐ NPDES)	Other	Total # of Containers	(5) Analyses Requested / Preservation Codes: VOCs	SVOCs	Metals	Moisture Content	(6) Remarks	(6) Temperature of samples upon receipt (if requested)
HGR-121311-FD01	12/13/11	—		X	X			4	✓	✓	✓	✓		
S11-SS02-0305-121311	12/13/11	1000		X	X			4	✓	✓	✓	✓		
~~S11-SS02-0805-121311~~	12/13							4	✓	✓	✓	✓		
S11-SS02-0810-121311	12/13/11	1005		X	X			4	✓	✓	✓	✓		
S11-SS01-0402-121311	12/13/11	1020		X	X			4	✓	✓	✓	✓		
S11-SS01-0308-121311	12/13/11	1025		X	X			4	✓	✓	✓	✓		
S11-SS01-0810-121311	12/13/11	1030		X	X			4	✓	✓	✓	✓		
S11-SS05-0002-121311	12/13/11	1050		X	X			4	✓	✓	✓	✓		
S11-SS05-0305-121311	12/13/11	1055		X	X			4	✓	✓	✓	✓		
S11-SS05-0810-121311	12/13/11	1100		X	X			4	✓	✓	✓	✓		

(7) **Turnaround Time Requested** (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed:
Rush results requested by (please circle): Phone Fax E-mail
Phone #: Fax #:
E-mail address:

(8) **Data Package Options** (please circle if required)
Type I (validation/NJ Reg)
Type II (Tier II)
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)
TX TRRP-13
MA MCP CT RCP
SDG Complete? Yes No
Site-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate volume.)
Internal COC Required? Yes / No

(9)

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	12/13/11	1830			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by: [signature]	12/14/11	0920

Lancaster Laboratories

Environmental Sample Administration
Receipt Documentation Log

Client/Project: DOW

Date of Receipt: 12/14/11

Time of Receipt: 0920

Source Code: So-1

Shipping Container Sealed: (YES) NO

Custody Seal Present * : (YES) NO

* Custody seal was intact unless otherwise noted in the discrepancy section

Package: (Chilled) Not Chilled

Temperature of Shipping Containers							
Cooler #	Thermometer ID	Temperature (°C)	Temp Bottle (TB) or Surface Temp (ST)	Wet Ice (WI) or Dry Ice (DI) or Ice Packs (IP)	Ice Present? Y/N	Loose (L) Bagged Ice (B) or NA	Comments
1	237	3.3°C	TB	WI	Y	B	
2	↓	2.8°C	↓	↓	↓	↓	
3							
4							
5							
6							

Number of Trip Blanks received NOT listed on chain of custody: 0

Paperwork Discrepancy/Unpacking Problems:

Unpacker Signature/Emp#: 2316 **Date/Time:** 12/14/11 1055

DHR00 8884

Issued by Dept. 6042 Management

2174.06

Bottle Code	Expected pH	Actual pH	Adjusted pH	Lot #	Preservative	Lab Submitted?	Sub-contracted?	Preservation Code	Date Entered
Vincent Norton									
SDG: DHR08									
Group: 1280964									
Sample: 6499033									
008A	<2	<2			HNO3	Y	N	PK - Original container checked - pH is within correct range. (No preservative was added)	12/14/2011

* linked sample

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10949 8260 Ext. Soil Master

The soil sample is purged and the volatile compounds are collected on a sorbent trap that is subsequently desorbed onto the GC/MS system for chromatographic and mass spectral analysis.

Reference: Test Methods for Evaluating Solid Wastes, SW-846 Method 8260B, December 1996

00259 Mercury

The solution resulting from the mercury digestion is analyzed by Cold Vapor AA.

Reference: Test Methods for Evaluating Solid Wastes, SW-846 Method 7470A, September 1994

00159 Mercury

The solution resulting from the mercury digestion is analyzed by Cold Vapor AA.

Reference: Test Methods for Evaluating Solid Wastes, SW-846 Method 7471A, September 1994

11026 SW SW846 ICP-MS Digest

The sample is digested with nitric acid and hydrogen peroxide.

Reference: Test Methods for Evaluating Solid Wastes, SW-846 Method 3050B, December 1996

05705 WW/TL SW 846 ICP Digest (tot)

The sample is digested with nitric and hydrochloric acid.

Reference: Test Methods for Evaluating Solid Wastes, SW-846 Method 3010A, July 1992

06050 ICP/MS SW-846 Water Digest

The sample is digested with nitric and hydrochloric acid.

Reference: Test Methods for Evaluating Solid Wastes, SW-846 Method 3020A, July 1992

05713 WW SW846 Hg Digest

The sample is heated at 95 c with nitric acid, sulfuric acid, potassium persulfate, and potassium permanganate. Excess potassium permanganate is reduced with sodium chloride/hydroxylamine hydrochloride. Mercuric ions are reduced to mercury metal using stannous chloride.

Reference: Test Methods for Evaluating Solid Wastes, SW-846 Method 7470A, September 1994

05711 SW SW846 Hg Digest

The sample is heated at 95 c with nitric acid, sulfuric acid, potassium persulfate, and potassium permanganate. Excess potassium permanganate is reduced with sodium chloride/hydroxylamine hydrochloride. Mercuric ions are reduced to mercury metal using stannous chloride.

Reference: Test Methods for Evaluating Solid Wastes, SW-846 Method 7471A Modified, September 1994.

DHR08 NODATA

07046 Barium
06946 Barium

06949 Cadmium
07049 Cadmium
06951 Chromium
07051 Chromium
07055 Lead
06955 Lead
06936 Selenium
07036 Selenium
06966 Silver
07066 Silver

The solution resulting from the metals digestion is analyzed by Trace ICP.

Reference: Test Methods for Evaluating Solid Wastes, SW-846 Method 6010B, December 1996.

06025 Arsenic
06125 Arsenic

The solution resulting from the metals digestion is analyzed by ICP/MS.

Reference: Test Methods for Evaluating Solid Wastes, SW-846 Method 6020, September 1994.

05708 SW SW846 ICP Digest

The sample is digested with nitric acid, hydrochloric acid and hydrogen peroxide.

Reference: Test Methods for Evaluating Solid Wastes, SW-846 Method 3050B, December 1996

00813 BNA Water Extraction

The sample aliquot is extracted with methylene chloride by either separatory funnel or liquid/liquid apparatus. Extraction is performed at both a pH of 11 and 2. The extract is concentrated prior to analysis.

Reference: Test Methods for Evaluating Solid Wastes, SW-846 Method 3510C, December 1996

10727 TCL 8270 (microwave)
04678 TCL SW846 Semivolatiles/Waters

The sample extract is analyzed by capillary column Gas Chromatography/Mass Spectrometry.

Reference: Test Methods for Evaluating Solid Wastes, SW-846 Method 8270C, December 1996

10809 BNA Soil Microwave

The sample aliquot is extracted using microwave extraction with 1:1 methylene chloride and acetone. The extract is concentrated prior to analysis.

Reference: Test Methods for Evaluating Solid Wastes, SW-846 Method 3546, Revision 0, February 2007.

00111 Moisture
00118 Moisture
00121 Moisture Duplicate

A well-mixed sample is placed in a tared container and dried to a constant weight in an oven at 103-105C. The increase in weight is the total solids.

Reference: Standard Methods for the Examination of Water and Wastewater, 20th Edition, 1998, Method 2540 G

08389 GC/MS - LL Encore Prep

Two EnCore samples are collected per sample. The vials used for preparation are pre-preserved and pre-weighed. Two aliquots are extruded into a sodium bisulfate solution. The vials are re-weighed and the weight of the sample should be 5-g +/- .5 g. The prepared samples are then delivered to the lab for analysis.

Reference: Test Methods for Evaluating Solid Wastes, SW-846 Method 5035, November 2004.

07578 GC/MS-HL Encore Prep-NC

The sample is collected in an EnCore sampler and is submitted to the laboratory. A vial containing 5-ml methanol is prepared for each sample and weighed prior to adding the sample. After the sample is added to the vial, the vial is reweighed and the weight of sample is determined by difference. The weight of the sample should be 5-g +/- .5 g. The sample vial is then delivered to the lab for analysis.

Reference: Test Methods for Evaluating Solid Wastes, SW-846 Method 5035, November 2004.

Lancaster Laboratories

ANALYTICAL RESULTS

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425

Prepared for:

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

December 27, 2011

Project: Dow Hanging Rock, OH

Submittal Date: 12/14/2011
Group Number: 1280964
SDG: DHR08
PO Number: 420671-04
Release Number: DHR08
State of Sample Origin: OH

Client Sample Description	Lancaster Labs (LLI) #
HGR-121311-EB01 Grab Water Sample	6499033
S11-SS04-0002-121311 Composite Soil Sample	6499034
S11-SS04-0305-121311 Composite Soil Sample	6499035
S11-SS04-0305-121311MS Composite Soil Sample	6499036
S11-SS04-0305-121311MSD Composite Soil Sample	6499037
S11-SS04-0305-121311DUP Composite Soil Sample	6499038
S11-SS04-0810-121311 Composite Soil Sample	6499039
S11-SS03-0002-121311 Composite Soil Sample	6499040
S11-SS03-0305-121311 Composite Soil Sample	6499041
S11-SS03-0810-121311 Composite Soil Sample	6499042
S11-SS02-0002-121311 Composite Soil Sample	6499043
HGR-121311-FD01 Composite Soil Sample	6499044
S11-SS02-0305-121311 Composite Soil Sample	6499045
S11-SS02-0810-121311 Composite Soil Sample	6499046
S11-SS01-0002-121311 Composite Soil Sample	6499047
S11-SS01-0308-121311 Composite Soil Sample	6499048
S11-SS01-0810-121311 Composite Soil Sample	6499049
S11-SS05-0002-121311 Composite Soil Sample	6499050
S11-SS05-0305-121311 Composite Soil Sample	6499051
S11-SS05-0810-121311 Composite Soil Sample	6499052

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC	CH2M Hill, Inc.	Attn: Shane Lowe
COPY TO		
ELECTRONIC	CH2M Hill, Inc.	Attn: Rachel Grand

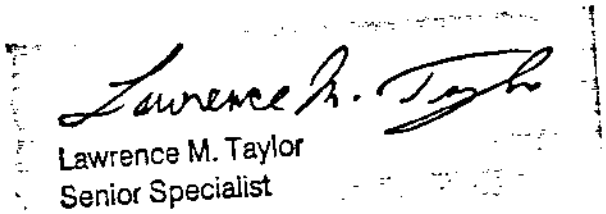
DHR08 0009

Lancaster Laboratories

COPY TO
1 COPY TO Data Package Group

Questions? Contact your Client Services Representative
Wendy A Kozma at (717) 656-2300 Ext. 1522

Respectfully Submitted,



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PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

J estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike sample not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*****	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as "analyze immediately" are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL LANCASTER LABORATORIES BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF LANCASTER LABORATORIES AND (B) WHETHER LANCASTER LABORATORIES HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Lancaster Laboratories which includes any conditions that vary from the Standard Terms and Conditions, and Lancaster hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Lancaster Laboratories

Sample Description: HGR-121311-EB01 Grab Water Sample
Dow Hanging Rock, OH

LLI Sample # WW 6499033
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 12:30 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HGRE- SDG#: DHR08-01EB

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**		**ug/l**	
04678	Acenaphthene	83-32-9	0.1	U	0.1	1
04678	Acenaphthylene	208-96-8	0.1	U	0.1	1
04678	Anthracene	120-12-7	0.1	U	0.1	1
04678	Benzo(a)anthracene	56-55-3	0.1	U	0.1	1
04678	Benzo(a)pyrene	50-32-8	0.1	U	0.1	1
04678	Benzo(b)fluoranthene	205-99-2	0.1	U	0.1	1
04678	Benzo(g,h,i)perylene	191-24-2	0.1	U	0.1	1
04678	Benzo(k)fluoranthene	207-08-9	0.1	U	0.1	1
04678	Benzyl alcohol	100-51-6	5	U	5	1
04678	1,1'-Biphenyl	92-52-4	0.5	U	0.5	1
04678	4-Bromophenyl-phenylether	101-55-3	0.5	U	0.5	1
04678	Butylbenzylphthalate	85-68-7	2	U	2	1
04678	Di-n-butylphthalate	84-74-2	2	U	2	1
04678	Carbazole	86-74-8	0.5	U	0.5	1
04678	4-Chloro-3-methylphenol	59-50-7	0.5	U	0.5	1
04678	4-Chloroaniline	106-47-8	0.5	U	0.5	1
04678	bis(2-Chloroethoxy)methane	111-91-1	0.5	U	0.5	1
04678	bis(2-Chloroethyl)ether	111-44-4	0.5	U	0.5	1
04678	2-Chloronaphthalene	91-58-7	0.4	U	0.4	1
04678	2-Chlorophenol	95-57-8	0.5	U	0.5	1
04678	4-Chlorophenyl-phenylether	7005-72-3	0.5	U	0.5	1
04678	Chrysene	218-01-9	0.1	U	0.1	1
04678	Dibenz(a,h)anthracene	53-70-3	0.1	U	0.1	1
04678	Dibenzofuran	132-64-9	0.5	U	0.5	1
04678	3,3'-Dichlorobenzidine	91-94-1	2	U	2	1
04678	2,4-Dichlorophenol	120-83-2	0.5	U	0.5	1
04678	Diethylphthalate	84-66-2	2	U	2	1
04678	2,4-Dimethylphenol	105-67-9	0.5	U	0.5	1
04678	Dimethylphthalate	131-11-3	2	U	2	1
04678	4,6-Dinitro-2-methylphenol	534-52-1	5	U	5	1
04678	2,4-Dinitrophenol	51-28-5	10	U	10	1
04678	2,4-Dinitrotoluene	121-14-2	1	U	1	1
04678	2,6-Dinitrotoluene	606-20-2	0.5	U	0.5	1
04678	1,4-Dioxane	123-91-1	1	U	1	1
04678	bis(2-Ethylhexyl)phthalate	117-81-7	2	U	2	1
04678	Fluoranthene	206-44-0	0.1	U	0.1	1
04678	Fluorene	86-73-7	0.1	U	0.1	1
04678	Hexachlorobenzene	118-74-1	0.1	U	0.1	1
04678	Hexachlorocyclopentadiene	77-47-4	5	U	5	1
04678	Hexachloroethane	67-72-1	1	U	1	1
04678	Indeno(1,2,3-cd)pyrene	193-39-5	0.1	U	0.1	1
04678	Isophorone	78-59-1	0.5	U	0.5	1
04678	2-Methylnaphthalene	91-57-6	0.1	U	0.1	1
04678	2-Methylphenol	95-48-7	0.5	U	0.5	1
04678	4-Methylphenol	106-44-5	0.5	U	0.5	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
04678	2-Nitroaniline	88-74-4	0.5	U	0.5	1 DHR08 0812
04678	3-Nitroaniline	99-09-2	0.5	U	0.5	1
04678	4-Nitroaniline	100-01-6	0.5	U	0.5	1

Lancaster Laboratories, Inc.
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Lancaster Laboratories

Sample Description: HGR-121311-EB01 Grab Water Sample
Dow Hanging Rock, OH

LLI Sample # WW 6499033
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 12:30 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HGRE- SDG#: DHR08-01EB

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/l**		**ug/l**	
04678	Nitrobenzene	98-95-3	0.5	U	0.5	1
04678	2-Nitrophenol	88-75-5	0.5	U	0.5	1
04678	4-Nitrophenol	100-02-7	10	U	10	1
04678	N-Nitroso-di-n-propylamine	621-64-7	0.5	U	0.5	1
04678	N-Nitrosodiphenylamine	86-30-6	0.5	U	0.5	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
04678	Di-n-octylphthalate	117-84-0	2	U	2	1
04678	Pentachlorophenol	87-86-5	1	U	1	1
04678	Phenanthrene	85-01-8	0.1	U	0.1	1
04678	Phenol	108-95-2	0.5	U	0.5	1
04678	Pyrene	129-00-0	0.1	U	0.1	1
04678	2,4,5-Trichlorophenol	95-95-4	0.5	U	0.5	1
04678	2,4,6-Trichlorophenol	88-06-2	0.5	U	0.5	1
Metals	**SW-846 6010B**		**mg/l**		**mg/l**	
07046	Barium	7440-39-3	0.00026	U	0.00026	1
07049	Cadmium	7440-43-9	0.00027	U	0.00027	1
07051	Chromium	7440-47-3	0.0011	U	0.0011	1
07055	Lead	7439-92-1	0.0022	U	0.0022	1
07036	Selenium	7782-49-2	0.0069	U	0.0069	1
07066	Silver	7440-22-4	0.00091	U	0.00091	1
	SW-846 6020		**mg/l**		**mg/l**	
06025	Arsenic	7440-38-2	0.00095	U	0.00095	1
	SW-846 7470A		**mg/l**		**mg/l**	
00259	Mercury	7439-97-6	0.000026	U	0.000026	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
04678	TCL SW846 Semivolatiles/Waters	SW-846 8270C	1	11353WAA026	12/20/2011 19:09	Holly Berry	1
00813	BNA Water Extraction	SW-846 3510C	1	11353WAA026	12/19/2011 22:00	Elaine F Stoltzfus	1
07046	Barium	SW-846 6010B	1	113495705002	12/17/2011 20:13	Tara L Snyder	1
07049	Cadmium	SW-846 6010B	1	113495705002	12/17/2011 20:13	Tara L Snyder	1
07051	Chromium	SW-846 6010B	1	113495705002	12/17/2011 20:13	Tara L Snyder	1
07055	Lead	SW-846 6010B	1	113495705002	12/17/2011 20:13	Tara L Snyder	1
07036	Selenium	SW-846 6010B	1	113495705002	12/17/2011 20:13	Tara L Snyder	1
07066	Silver	SW-846 6010B	1	113495705002	12/17/2011 20:13	Tara L Snyder	1

Lancaster Laboratories

Sample Description: HGR-121311-EB01 Grab Water Sample
Dow Hanging Rock, OH

LLI Sample # WW 6499033
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 12:30 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HGRE- SDG#: DHR08-01EB

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	SW-846 6020	1	113496050001A	12/19/2011 12:16	Choon Y Tian	1
00259	Mercury	SW-846 7470A	1	113495713003	12/19/2011 08:30	Damary Valentin	1
05705	WW/TL SW 846 ICP Digest (tot)	SW-846 3010A	1	113495705002	12/16/2011 09:38	Denise K Conners	1
06050	ICP/MS SW-846 Water Digest	SW-846 3020A	1	113496050001	12/16/2011 09:56	Denise K Conners	1
05713	WW SW846 Hg Digest	SW-846 7470A	1	113495713003	12/16/2011 09:00	Damary Valentin	1

DHR08 0814

Lancaster Laboratories

Sample Description: S11-SS04-0002-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499034
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 08:50 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

40002 SDG#: DHR08-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	SW-846 8260B		ug/kg		ug/kg	
10949	Acetone	67-64-1	40		8	0.89
10949	Benzene	71-43-2	0.5	U	0.5	0.89
10949	Bromobenzene	108-86-1	1	U	1	0.89
10949	Bromochloromethane	74-97-5	1	U	1	0.89
10949	Bromodichloromethane	75-27-4	1	U	1	0.89
10949	Bromoform	75-25-2	1	U	1	0.89
10949	Bromomethane	74-83-9	2	U	2	0.89
10949	2-Butanone	78-93-3	5	J	4	0.89
10949	n-Butylbenzene	104-51-8	1	U	1	0.89
10949	sec-Butylbenzene	135-98-8	1	U	1	0.89
10949	tert-Butylbenzene	98-06-6	1	U	1	0.89
10949	Carbon Disulfide	75-15-0	8		1	0.89
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.89
10949	Chlorobenzene	108-90-7	1	U	1	0.89
10949	Chloroethane	75-00-3	2	U	2	0.89
10949	Chloroform	67-66-3	1	U	1	0.89
10949	Chloromethane	74-87-3	2	U	2	0.89
10949	2-Chlorotoluene	95-49-8	1	U	1	0.89
10949	4-Chlorotoluene	106-43-4	1	U	1	0.89
10949	Cyclohexane	110-82-7	1	U	1	0.89
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.89
10949	Dibromochloromethane	124-48-1	1	U	1	0.89
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.89
10949	Dibromomethane	74-95-3	1	U	1	0.89
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.89
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.89
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.89
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.89
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.89
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.89
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.89
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.89
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.89
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.89
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.89
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.89
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.89
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.89
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.89
10949	Ethylbenzene	100-41-4	1	U	1	0.89
10949	Freon 113	76-13-1	2	U	2	0.89
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.89
10949	2-Hexanone	591-78-6	3	U	3	0.89
10949	Isopropylbenzene	98-82-8	1	U	1	0.89
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.89
10949	Methyl Acetate	79-20-9	2	U	2	0.89
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.89
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.89
10949	Methylcyclohexane	108-87-2	1	U	1	0.89
10949	Methylene Chloride	75-09-2	2	U	2	0.89
10949	Naphthalene	91-20-3	1	U	1	0.89

DHR08 0015

Lancaster Laboratories

Sample Description: S11-SS04-0002-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499034
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 08:50 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

40002 SDG#: DHR08-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.89
10949	Styrene	100-42-5	1	U	1	0.89
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.89
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.89
10949	Tetrachloroethene	127-18-4	1	U	1	0.89
10949	Toluene	108-88-3	1	U	1	0.89
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.89
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.89
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.89
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.89
10949	Trichloroethene	79-01-6	1	U	1	0.89
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.89
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.89
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.89
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.89
10949	Vinyl Acetate	108-05-4	2	U	2	0.89
10949	Vinyl Chloride	75-01-4	1	U	1	0.89
10949	m+p-Xylene	179601-23-1	1	U	1	0.89
10949	o-Xylene	95-47-6	1	U	1	0.89
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	J	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	20	U	20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	81	U	81	1
10727	Di-n-butylphthalate	84-74-2	81	U	81	1
10727	Carbazole	86-74-8	20	U	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	20	U	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1
10727	Diethylphthalate	84-66-2	81	U	81	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	81	U	81	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1

DHR08 0816

Lancaster Laboratories

Sample Description: S11-SS04-0002-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499034
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 08:50 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

40002 SDG#: DHR08-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	410	U	410	1
10727	2,4-Dinitrotoluene	121-14-2	81	U	81	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	81	U	81	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	41	U	41	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	81	U	81	1
10727	4-Nitroaniline	100-01-6	81	U	81	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	81	U	81	1
10727	Pentachlorophenol	87-86-5	41	U	41	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	20	U	20	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	118		0.0215	1
06949	Cadmium	7440-43-9	0.958		0.0239	1
06951	Chromium	7440-47-3	23.5		0.167	1
06955	Lead	7439-92-1	15.5		0.262	1
06936	Selenium	7782-49-2	0.811	U	0.811	1
06966	Silver	7440-22-4	0.0990	U	0.0990	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	13.4		0.0945	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0127	J	0.0085	1

DHR08 0017

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PO Box 12425
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Lancaster Laboratories

Sample Description: S11-SS04-0002-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499034
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 08:50 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

40002 SDG#: DHR08-02

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	17.8	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113541AA	12/20/2011 15:36	Emily R Styer	0.89
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134826436	12/14/2011 13:36	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134826436	12/14/2011 13:36	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134826436	12/14/2011 13:35	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11349SLA026	12/16/2011 07:21	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11349SLA026	12/15/2011 15:30	David S Schrum	1
06946	Barium	SW-846 6010B	1	113495708001	12/19/2011 13:12	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113495708001	12/19/2011 13:12	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113495708001	12/19/2011 13:12	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113495708001	12/19/2011 13:12	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113495708001	12/19/2011 13:12	Eric L Eby	1
06966	Silver	SW-846 6010B	1	113495708001	12/19/2011 13:12	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113491026001A	12/21/2011 11:27	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113495711001	12/16/2011 08:09	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113495708001	12/15/2011 21:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113491026001	12/15/2011 21:27	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113495711001	12/15/2011 23:15	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11350820005A	12/16/2011 19:06	Scott W Freisher	1

DHR08 8818

Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681

Lancaster Laboratories

Sample Description: S11-SS04-0305-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499035
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 08:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

40305 SDG#: DHR08-03BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	SW-846 8260B		ug/kg		ug/kg	
10949	Acetone	67-64-1	15	J	7	0.83
10949	Benzene	71-43-2	0.5	U	0.5	0.83
10949	Bromobenzene	108-86-1	1	U	1	0.83
10949	Bromochloromethane	74-97-5	1	U	1	0.83
10949	Bromodichloromethane	75-27-4	1	U	1	0.83
10949	Bromoform	75-25-2	1	U	1	0.83
10949	Bromomethane	74-83-9	2	U	2	0.83
10949	2-Butanone	78-93-3	4	U	4	0.83
10949	n-Butylbenzene	104-51-8	1	U	1	0.83
10949	sec-Butylbenzene	135-98-8	1	U	1	0.83
10949	tert-Butylbenzene	98-06-6	1	U	1	0.83
10949	Carbon Disulfide	75-15-0	1	U	1	0.83
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.83
10949	Chlorobenzene	108-90-7	1	U	1	0.83
10949	Chloroethane	75-00-3	2	U	2	0.83
10949	Chloroform	67-66-3	1	U	1	0.83
10949	Chloromethane	74-87-3	2	U	2	0.83
10949	2-Chlorotoluene	95-49-8	1	U	1	0.83
10949	4-Chlorotoluene	106-43-4	1	U	1	0.83
10949	Cyclohexane	110-82-7	1	U	1	0.83
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.83
10949	Dibromochloromethane	124-48-1	1	U	1	0.83
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.83
10949	Dibromomethane	74-95-3	1	U	1	0.83
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.83
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.83
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.83
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.83
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.83
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.83
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.83
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.83
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.83
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.83
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.83
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.83
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.83
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.83
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.83
10949	Ethylbenzene	100-41-4	1	U	1	0.83
10949	Freon 113	76-13-1	2	U	2	0.83
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.83
10949	2-Hexanone	591-78-6	3	U	3	0.83
10949	Isopropylbenzene	98-82-8	1	U	1	0.83
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.83
10949	Methyl Acetate	79-20-9	2	U	2	0.83
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.83
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.83
10949	Methylcyclohexane	108-87-2	1	U	1	0.83
10949	Methylene Chloride	75-09-2	2	U	2	0.83
10949	Naphthalene	91-20-3	1	U	1	0.83

Lancaster Laboratories

Sample Description: S11-SS04-0305-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499035
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 08:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

40305 SDG#: DHR08-03BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.83
10949	Styrene	100-42-5	1	U	1	0.83
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.83
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.83
10949	Tetrachloroethene	127-18-4	1	U	1	0.83
10949	Toluene	108-88-3	1	U	1	0.83
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.83
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.83
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.83
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.83
10949	Trichloroethene	79-01-6	1	U	1	0.83
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.83
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.83
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.83
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.83
10949	Vinyl Acetate	108-05-4	2	U	2	0.83
10949	Vinyl Chloride	75-01-4	1	U	1	0.83
10949	m+p-Xylene	179601-23-1	1	U	1	0.83
10949	o-Xylene	95-47-6	1	U	1	0.83
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	210	U	210	1
10727	1,1'-Biphenyl	92-52-4	21	U	21	1
10727	4-Bromophenyl-phenylether	101-55-3	21	U	21	1
10727	Butylbenzylphthalate	85-68-7	83	U	83	1
10727	Di-n-butylphthalate	84-74-2	83	U	83	1
10727	Carbazole	86-74-8	21	U	21	1
10727	4-Chloro-3-methylphenol	59-50-7	21	U	21	1
10727	4-Chloroaniline	106-47-8	21	U	21	1
10727	bis(2-Chloroethoxy)methane	111-91-1	21	U	21	1
10727	bis(2-Chloroethyl)ether	111-44-4	21	U	21	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	21	U	21	1
10727	4-Chlorophenyl-phenylether	7005-72-3	21	U	21	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	21	U	21	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	21	U	21	1
10727	Diethylphthalate	84-66-2	83	U	83	1
10727	2,4-Dimethylphenol	105-67-9	21	U	21	1
10727	Dimethylphthalate	131-11-3	83	U	83	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	210	U	210	1

DHR08 80228

Lancaster Laboratories

Sample Description: S11-SS04-0305-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499035
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 08:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

40305 SDG#: DHR08-03BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	410	U	410	1
10727	2,4-Dinitrotoluene	121-14-2	83	U	83	1
10727	2,6-Dinitrotoluene	606-20-2	21	U	21	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	83	U	83	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	210	U	210	1
10727	Hexachloroethane	67-72-1	41	U	41	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	21	U	21	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	21	U	21	1
10727	4-Methylphenol	106-44-5	21	U	21	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	21	U	21	1
10727	3-Nitroaniline	99-09-2	83	U	83	1
10727	4-Nitroaniline	100-01-6	83	U	83	1
10727	Nitrobenzene	98-95-3	21	U	21	1
10727	2-Nitrophenol	88-75-5	21	U	21	1
10727	4-Nitrophenol	100-02-7	210	U	210	1
10727	N-Nitroso-di-n-propylamine	621-64-7	21	U	21	1
10727	N-Nitrosodiphenylamine	86-30-6	21	U	21	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	83	U	83	1
10727	Pentachlorophenol	87-86-5	41	U	41	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	21	U	21	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	21	U	21	1
10727	2,4,6-Trichlorophenol	88-06-2	21	U	21	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	76.1		0.0214	1
06949	Cadmium	7440-43-9	1.02		0.0238	1
06951	Chromium	7440-47-3	21.9		0.167	1
06955	Lead	7439-92-1	14.8		0.262	1
06936	Selenium	7782-49-2	0.809	U	0.809	1
06966	Silver	7440-22-4	0.0988	U	0.0988	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	15.3		0.0961	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0222	J	0.0083	1

DHR08 88021

Lancaster Laboratories

Sample Description: S11-SS04-0305-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499035
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 08:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

40305 SDG#: DHR08-03BKG

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	19.2	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113541AA	12/20/2011 15:59	Emily R Styer	0.83
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134826436	12/14/2011 13:38	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134826436	12/14/2011 13:39	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134826436	12/14/2011 13:37	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11349SLA026	12/16/2011 06:05	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11349SLA026	12/15/2011 15:30	David S Schrum	1
06946	Barium	SW-846 6010B	1	113495708001	12/19/2011 12:50	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113495708001	12/19/2011 12:50	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113495708001	12/19/2011 12:50	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113495708001	12/19/2011 12:50	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113495708001	12/20/2011 11:02	Joanne M Gates	1
06966	Silver	SW-846 6010B	1	113495708001	12/19/2011 12:50	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113491026001A	12/21/2011 11:15	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113495711001	12/16/2011 06:29	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113495708001	12/15/2011 21:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113491026001	12/15/2011 21:27	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113495711001	12/15/2011 23:15	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11350820005A	12/16/2011 19:06	Scott W Freisher	1

DHR08 0822

Lancaster Laboratories

Sample Description: S11-SS04-0305-121311MS Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499036
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 08:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

40305 SDG#: DHR08-03MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	SW-846 8260B		ug/kg	ug/kg	
10949	Acetone	67-64-1	220	7	0.87
10949	Benzene	71-43-2	21	0.5	0.87
10949	Bromobenzene	108-86-1	23	1	0.87
10949	Bromochloromethane	74-97-5	21	1	0.87
10949	Bromodichloromethane	75-27-4	20	1	0.87
10949	Bromoform	75-25-2	22	1	0.87
10949	Bromomethane	74-83-9	23	2	0.87
10949	2-Butanone	78-93-3	190	4	0.87
10949	n-Butylbenzene	104-51-8	21	1	0.87
10949	sec-Butylbenzene	135-98-8	23	1	0.87
10949	tert-Butylbenzene	98-06-6	24	1	0.87
10949	Carbon Disulfide	75-15-0	22	1	0.87
10949	Carbon Tetrachloride	56-23-5	25	1	0.87
10949	Chlorobenzene	108-90-7	22	1	0.87
10949	Chloroethane	75-00-3	21	2	0.87
10949	Chloroform	67-66-3	22	1	0.87
10949	Chloromethane	74-87-3	17	2	0.87
10949	2-Chlorotoluene	95-49-8	22	1	0.87
10949	4-Chlorotoluene	106-43-4	22	1	0.87
10949	Cyclohexane	110-82-7	21	1	0.87
10949	1,2-Dibromo-3-chloropropane	96-12-8	25	2	0.87
10949	Dibromochloromethane	124-48-1	22	1	0.87
10949	1,2-Dibromoethane	106-93-4	23	1	0.87
10949	Dibromomethane	74-95-3	21	1	0.87
10949	1,2-Dichlorobenzene	95-50-1	22	1	0.87
10949	1,3-Dichlorobenzene	541-73-1	23	1	0.87
10949	1,4-Dichlorobenzene	106-46-7	22	1	0.87
10949	Dichlorodifluoromethane	75-71-8	23	2	0.87
10949	1,1-Dichloroethane	75-34-3	21	1	0.87
10949	1,2-Dichloroethane	107-06-2	25	1	0.87
10949	1,1-Dichloroethene	75-35-4	22	1	0.87
10949	cis-1,2-Dichloroethene	156-59-2	21	1	0.87
10949	trans-1,2-Dichloroethene	156-60-5	22	1	0.87
10949	1,2-Dichloropropane	78-87-5	18	1	0.87
10949	1,3-Dichloropropane	142-28-9	21	1	0.87
10949	2,2-Dichloropropane	594-20-7	20	1	0.87
10949	1,1-Dichloropropene	563-58-6	23	1	0.87
10949	cis-1,3-Dichloropropene	10061-01-5	18	1	0.87
10949	trans-1,3-Dichloropropene	10061-02-6	19	1	0.87
10949	Ethylbenzene	100-41-4	23	1	0.87
10949	Freon 113	76-13-1	23	2	0.87
10949	Hexachlorobutadiene	87-68-3	23	2	0.87
10949	2-Hexanone	591-78-6	110	3	0.87
10949	Isopropylbenzene	98-82-8	24	1	0.87
10949	p-Isopropyltoluene	99-87-6	23	1	0.87
10949	Methyl Acetate	79-20-9	25	2	0.87
10949	Methyl Tertiary Butyl Ether	1634-04-4	22	0.5	0.87
10949	4-Methyl-2-pentanone	108-10-1	120	3	0.87
10949	Methylcyclohexane	108-87-2	20	1	0.87
10949	Methylene Chloride	75-09-2	20	2	0.87
10949	Naphthalene	91-20-3	21	1	0.87

DHR08-0823

Lancaster Laboratories

Sample Description: S11-SS04-0305-121311MS Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499036
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 08:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

40305 SDG#: DHR08-03MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg	ug/kg	
10949	n-Propylbenzene	103-65-1	23	1	0.87
10949	Styrene	100-42-5	10	1	0.87
10949	1,1,1,2-Tetrachloroethane	630-20-6	23	1	0.87
10949	1,1,2,2-Tetrachloroethane	79-34-5	20	1	0.87
10949	Tetrachloroethene	127-18-4	26	1	0.87
10949	Toluene	108-88-3	22	1	0.87
10949	1,2,3-Trichlorobenzene	87-61-6	22	1	0.87
10949	1,2,4-Trichlorobenzene	120-82-1	21	1	0.87
10949	1,1,1-Trichloroethane	71-55-6	25	1	0.87
10949	1,1,2-Trichloroethane	79-00-5	21	1	0.87
10949	Trichloroethene	79-01-6	22	1	0.87
10949	Trichlorofluoromethane	75-69-4	28	2	0.87
10949	1,2,3-Trichloropropane	96-18-4	24	1	0.87
10949	1,2,4-Trimethylbenzene	95-63-6	23	1	0.87
10949	1,3,5-Trimethylbenzene	108-67-8	23	1	0.87
10949	Vinyl Acetate	108-05-4	74	2	0.81
10949	Vinyl Chloride	75-01-4	19	1	0.87
10949	m+p-Xylene	179601-23-1	45	1	0.87
10949	o-Xylene	95-47-6	22	1	0.87
GC/MS Semivolatiles	**SW-846 8270C**		ug/kg	ug/kg	
10727	Acenaphthene	83-32-9	2,000	4	1
10727	Acenaphthylene	208-96-8	2,100	4	1
10727	Anthracene	120-12-7	2,000	4	1
10727	Benzo(a)anthracene	56-55-3	1,900	4	1
10727	Benzo(a)pyrene	50-32-8	2,100	4	1
10727	Benzo(b)fluoranthene	205-99-2	2,100	4	1
10727	Benzo(g,h,i)perylene	191-24-2	2,100	4	1
10727	Benzo(k)fluoranthene	207-08-9	2,100	4	1
10727	Benzyl alcohol	100-51-6	2,000	210	1
10727	1,1'-Biphenyl	92-52-4	2,000	21	1
10727	4-Bromophenyl-phenylether	101-55-3	2,000	21	1
10727	Butylbenzylphthalate	85-68-7	2,000	83	1
10727	Di-n-butylphthalate	84-74-2	2,000	83	1
10727	Carbazole	86-74-8	1,900	21	1
10727	4-Chloro-3-methylphenol	59-50-7	1,900	21	1
10727	4-Chloroaniline	106-47-8	1,600	21	1
10727	bis(2-Chloroethoxy)methane	111-91-1	2,000	21	1
10727	bis(2-Chloroethyl)ether	111-44-4	2,000	21	1
10727	2-Chloronaphthalene	91-58-7	2,300	9	1
10727	2-Chlorophenol	95-57-8	2,000	21	1
10727	4-Chlorophenyl-phenylether	7005-72-3	2,000	21	1
10727	Chrysene	218-01-9	1,900	4	1
10727	Dibenz(a,h)anthracene	53-70-3	2,000	4	1
10727	Dibenzofuran	132-64-9	1,900	21	1
10727	3,3'-Dichlorobenzidine	91-94-1	1,500	120	1
10727	2,4-Dichlorophenol	120-83-2	2,000	21	1
10727	Diethylphthalate	84-66-2	1,900	83	1
10727	2,4-Dimethylphenol	105-67-9	1,900	21	1
10727	Dimethylphthalate	131-11-3	2,000	83	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	1,900	210	1

DHR08 0824

Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681

Lancaster Laboratories

Sample Description: S11-SS04-0305-121311MS Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499036
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 08:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

40305 SDG#: DHR08-03MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**	**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	3,400	410	1
10727	2,4-Dinitrotoluene	121-14-2	2,000	83	1
10727	2,6-Dinitrotoluene	606-20-2	2,000	21	1
10727	1,4-Dioxane	123-91-1	1,100	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	2,000	83	1
10727	Fluoranthene	206-44-0	1,900	4	1
10727	Fluorene	86-73-7	2,000	4	1
10727	Hexachlorobenzene	118-74-1	1,900	4	1
10727	Hexachlorocyclopentadiene	77-47-4	4,300	210	1
10727	Hexachloroethane	67-72-1	1,900	41	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	2,100	4	1
10727	Isophorone	78-59-1	2,000	21	1
10727	2-Methylnaphthalene	91-57-6	1,900	4	1
10727	2-Methylphenol	95-48-7	2,000	21	1
10727	4-Methylphenol	106-44-5	2,000	21	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.				
10727	2-Nitroaniline	88-74-4	2,000	21	1
10727	3-Nitroaniline	99-09-2	1,900	83	1
10727	4-Nitroaniline	100-01-6	1,500	83	1
10727	Nitrobenzene	98-95-3	2,000	21	1
10727	2-Nitrophenol	88-75-5	1,900	21	1
10727	4-Nitrophenol	100-02-7	1,600	210	1
10727	N-Nitroso-di-n-propylamine	621-64-7	1,800	21	1
10727	N-Nitrosodiphenylamine	86-30-6	2,000	21	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.				
10727	Di-n-octylphthalate	117-84-0	2,200	83	1
10727	Pentachlorophenol	87-86-5	1,900	41	1
10727	Phenanthrene	85-01-8	2,000	4	1
10727	Phenol	108-95-2	1,900	21	1
10727	Pyrene	129-00-0	1,900	4	1
10727	2,4,5-Trichlorophenol	95-95-4	2,000	21	1
10727	2,4,6-Trichlorophenol	88-06-2	2,000	21	1
Metals	**SW-846 6010B**		**mg/kg**	**mg/kg**	
06946	Barium	7440-39-3	342	0.0216	1
06949	Cadmium	7440-43-9	6.76	0.0240	1
06951	Chromium	7440-47-3	53.0	0.168	1
06955	Lead	7439-92-1	33.9	0.264	1
06936	Selenium	7782-49-2	17.9	0.817	1
06966	Silver	7440-22-4	5.82	0.0997	1
	SW-846 6020		**mg/kg**	**mg/kg**	
06125	Arsenic	7440-38-2	17.8	0.0961	2
	SW-846 7471A		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.221	0.0085	1

DHR08 0025

Lancaster Laboratories

Sample Description: S11-SS04-0305-121311MS Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499036
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 08:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

40305 SDG#: DHR08-03MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00118	Moisture	n.a.	19.2	0.50	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113541AA	12/20/2011 16:22	Emily R Styer	0.87
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113541AA	12/20/2011 17:07	Emily R Styer	0.81
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134826436	12/14/2011 13:40	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134826436	12/14/2011 13:41	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134826436	12/14/2011 13:40	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11349SLA026	12/16/2011 06:30	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11349SLA026	12/15/2011 15:30	David S Schrum	1
06946	Barium	SW-846 6010B	1	113495708001	12/19/2011 13:01	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113495708001	12/19/2011 13:01	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113495708001	12/19/2011 13:01	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113495708001	12/19/2011 13:01	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113495708001	12/19/2011 13:01	Eric L Eby	1
06966	Silver	SW-846 6010B	1	113495708001	12/19/2011 13:01	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113491026001A	12/21/2011 11:19	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113495711001	12/16/2011 06:33	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113495708001	12/15/2011 21:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113491026001	12/15/2011 21:27	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113495711001	12/15/2011 23:15	Annamaria Stipkovits	1
00118	Moisture	SM20 2540 G	1	11350820005A	12/16/2011 19:06	Scott W Freisher	1

DHR08 0826

Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681

Lancaster Laboratories

Sample Description: S11-SS04-0305-121311MSD Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499037
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 08:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

40305 SDG#: DHR08-03MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	SW-846 8260B		ug/kg	ug/kg	
10949	Acetone	67-64-1	220	7	0.87
10949	Benzene	71-43-2	20	0.5	0.87
10949	Bromobenzene	108-86-1	22	1	0.87
10949	Bromochloromethane	74-97-5	22	1	0.87
10949	Bromodichloromethane	75-27-4	20	1	0.87
10949	Bromoform	75-25-2	21	1	0.87
10949	Bromomethane	74-83-9	23	2	0.87
10949	2-Butanone	78-93-3	170	4	0.87
10949	n-Butylbenzene	104-51-8	20	1	0.87
10949	sec-Butylbenzene	135-98-8	22	1	0.87
10949	tert-Butylbenzene	98-06-6	23	1	0.87
10949	Carbon Disulfide	75-15-0	23	1	0.87
10949	Carbon Tetrachloride	56-23-5	23	1	0.87
10949	Chlorobenzene	108-90-7	21	1	0.87
10949	Chloroethane	75-00-3	22	2	0.87
10949	Chloroform	67-66-3	22	1	0.87
10949	Chloromethane	74-87-3	18	2	0.87
10949	2-Chlorotoluene	95-49-8	21	1	0.87
10949	4-Chlorotoluene	106-43-4	21	1	0.87
10949	Cyclohexane	110-82-7	21	1	0.87
10949	1,2-Dibromo-3-chloropropane	96-12-8	23	2	0.87
10949	Dibromochloromethane	124-48-1	21	1	0.87
10949	1,2-Dibromoethane	106-93-4	22	1	0.87
10949	Dibromomethane	74-95-3	20	1	0.87
10949	1,2-Dichlorobenzene	95-50-1	21	1	0.87
10949	1,3-Dichlorobenzene	541-73-1	22	1	0.87
10949	1,4-Dichlorobenzene	106-46-7	21	1	0.87
10949	Dichlorodifluoromethane	75-71-8	24	2	0.87
10949	1,1-Dichloroethane	75-34-3	21	1	0.87
10949	1,2-Dichloroethane	107-06-2	24	1	0.87
10949	1,1-Dichloroethene	75-35-4	21	1	0.87
10949	cis-1,2-Dichloroethene	156-59-2	20	1	0.87
10949	trans-1,2-Dichloroethene	156-60-5	21	1	0.87
10949	1,2-Dichloropropane	78-87-5	18	1	0.87
10949	1,3-Dichloropropane	142-28-9	20	1	0.87
10949	2,2-Dichloropropane	594-20-7	19	1	0.87
10949	1,1-Dichloropropene	563-58-6	21	1	0.87
10949	cis-1,3-Dichloropropene	10061-01-5	18	1	0.87
10949	trans-1,3-Dichloropropene	10061-02-6	19	1	0.87
10949	Ethylbenzene	100-41-4	22	1	0.87
10949	Freon 113	76-13-1	23	2	0.87
10949	Hexachlorobutadiene	87-68-3	25	2	0.87
10949	2-Hexanone	591-78-6	100	3	0.87
10949	Isopropylbenzene	98-82-8	23	1	0.87
10949	p-Isopropyltoluene	99-87-6	23	1	0.87
10949	Methyl Acetate	79-20-9	26	2	0.87
10949	Methyl Tertiary Butyl Ether	1634-04-4	21	0.5	0.87
10949	4-Methyl-2-pentanone	108-10-1	110	3	0.87
10949	Methylcyclohexane	108-87-2	22	1	0.87
10949	Methylene Chloride	75-09-2	19	2	0.87
10949	Naphthalene	91-20-3	21	1	0.87

DHR08 0527

Lancaster Laboratories, Inc.
2425 New Holland Pike
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717-656-2300 Fax: 717-656-2681

Lancaster Laboratories

Sample Description: S11-SS04-0305-121311MSD Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499037
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 08:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

40305 SDG#: DHR08-03MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg	ug/kg	
10949	n-Propylbenzene	103-65-1	21	1	0.87
10949	Styrene	100-42-5	9	1	0.87
10949	1,1,1,2-Tetrachloroethane	630-20-6	22	1	0.87
10949	1,1,2,2-Tetrachloroethane	79-34-5	19	1	0.87
10949	Tetrachloroethene	127-18-4	25	1	0.87
10949	Toluene	108-88-3	21	1	0.87
10949	1,2,3-Trichlorobenzene	87-61-6	22	1	0.87
10949	1,2,4-Trichlorobenzene	120-82-1	21	1	0.87
10949	1,1,1-Trichloroethane	71-55-6	23	1	0.87
10949	1,1,2-Trichloroethane	79-00-5	21	1	0.87
10949	Trichloroethene	79-01-6	20	1	0.87
10949	Trichlorofluoromethane	75-69-4	28	2	0.87
10949	1,2,3-Trichloropropane	96-18-4	22	1	0.87
10949	1,2,4-Trimethylbenzene	95-63-6	22	1	0.87
10949	1,3,5-Trimethylbenzene	108-67-8	22	1	0.87
10949	Vinyl Acetate	108-05-4	95	2	0.83
10949	Vinyl Chloride	75-01-4	20	1	0.87
10949	m+p-Xylene	179601-23-1	43	1	0.87
10949	o-Xylene	95-47-6	21	1	0.87
GC/MS Semivolatiles	**SW-846 8270C**		ug/kg	ug/kg	
10727	Acenaphthene	83-32-9	1,900	4	1
10727	Acenaphthylene	208-96-8	2,000	4	1
10727	Anthracene	120-12-7	1,900	4	1
10727	Benzo(a)anthracene	56-55-3	1,900	4	1
10727	Benzo(a)pyrene	50-32-8	2,000	4	1
10727	Benzo(b)fluoranthene	205-99-2	2,000	4	1
10727	Benzo(g,h,i)perylene	191-24-2	2,000	4	1
10727	Benzo(k)fluoranthene	207-08-9	2,000	4	1
10727	Benzyl alcohol	100-51-6	1,900	210	1
10727	1,1'-Biphenyl	92-52-4	1,900	21	1
10727	4-Bromophenyl-phenylether	101-55-3	1,900	21	1
10727	Butylbenzylphthalate	85-68-7	1,900	83	1
10727	Di-n-butylphthalate	84-74-2	1,900	83	1
10727	Carbazole	86-74-8	1,800	21	1
10727	4-Chloro-3-methylphenol	59-50-7	1,800	21	1
10727	4-Chloroaniline	106-47-8	1,400	21	1
10727	bis(2-Chloroethoxy)methane	111-91-1	1,900	21	1
10727	bis(2-Chloroethyl)ether	111-44-4	1,900	21	1
10727	2-Chloronaphthalene	91-58-7	2,200	9	1
10727	2-Chlorophenol	95-57-8	1,900	21	1
10727	4-Chlorophenyl-phenylether	7005-72-3	1,900	21	1
10727	Chrysene	218-01-9	1,800	4	1
10727	Dibenz(a,h)anthracene	53-70-3	2,000	4	1
10727	Dibenzofuran	132-64-9	1,900	21	1
10727	3,3'-Dichlorobenzidine	91-94-1	1,400	120	1
10727	2,4-Dichlorophenol	120-83-2	1,900	21	1
10727	Diethylphthalate	84-66-2	1,900	83	1
10727	2,4-Dimethylphenol	105-67-9	1,800	21	1
10727	Dimethylphthalate	131-11-3	1,900	83	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	1,800	210	1

DHR08 0326

Lancaster Laboratories

Sample Description: S11-SS04-0305-121311MSD Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499037
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 08:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

40305 SDG#: DHR08-03MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**	**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	3,300	410	1
10727	2,4-Dinitrotoluene	121-14-2	1,900	83	1
10727	2,6-Dinitrotoluene	606-20-2	1,900	21	1
10727	1,4-Dioxane	123-91-1	1,100	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	1,900	83	1
10727	Fluoranthene	206-44-0	1,900	4	1
10727	Fluorene	86-73-7	1,900	4	1
10727	Hexachlorobenzene	118-74-1	1,900	4	1
10727	Hexachlorocyclopentadiene	77-47-4	4,300	210	1
10727	Hexachloroethane	67-72-1	1,800	41	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	2,000	4	1
10727	Isophorone	78-59-1	1,900	21	1
10727	2-Methylnaphthalene	91-57-6	1,800	4	1
10727	2-Methylphenol	95-48-7	1,900	21	1
10727	4-Methylphenol	106-44-5	2,000	21	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.				
10727	2-Nitroaniline	88-74-4	1,900	21	1
10727	3-Nitroaniline	99-09-2	1,800	83	1
10727	4-Nitroaniline	100-01-6	1,500	83	1
10727	Nitrobenzene	98-95-3	1,900	21	1
10727	2-Nitrophenol	88-75-5	1,900	21	1
10727	4-Nitrophenol	100-02-7	1,600	210	1
10727	N-Nitroso-di-n-propylamine	621-64-7	1,700	21	1
10727	N-Nitrosodiphenylamine	86-30-6	2,000	21	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.				
10727	Di-n-octylphthalate	117-84-0	2,100	83	1
10727	Pentachlorophenol	87-86-5	1,800	41	1
10727	Phenanthrene	85-01-8	1,900	4	1
10727	Phenol	108-95-2	1,900	21	1
10727	Pyrene	129-00-0	1,900	4	1
10727	2,4,5-Trichlorophenol	95-95-4	1,900	21	1
10727	2,4,6-Trichlorophenol	88-06-2	1,900	21	1
Metals	**SW-846 6010B**		**mg/kg**	**mg/kg**	
06946	Barium	7440-39-3	344	0.0216	1
06949	Cadmium	7440-43-9	6.74	0.0240	1
06951	Chromium	7440-47-3	52.5	0.168	1
06955	Lead	7439-92-1	32.3	0.264	1
06936	Selenium	7782-49-2	18.4	0.817	1
06966	Silver	7440-22-4	5.80	0.0997	1
	SW-846 6020		**mg/kg**	**mg/kg**	
06125	Arsenic	7440-38-2	17.1	0.0990	2
	SW-846 7471A		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.208	0.0084	1

DHR08 8825

Lancaster Laboratories

Sample Description: S11-SS04-0305-121311MSD Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499037
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 08:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

40305 SDG#: DHR08-03MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00118	Moisture	n.a.	19.2	0.50	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113541AA	12/20/2011 16:44	Emily R Styer	0.87
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113541AA	12/20/2011 17:30	Emily R Styer	0.83
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134826436	12/14/2011 13:42	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134826436	12/14/2011 13:43	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134826436	12/14/2011 13:42	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11349SLA026	12/16/2011 06:56	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11349SLA026	12/15/2011 15:30	David S Schrum	1
06946	Barium	SW-846 6010B	1	113495708001	12/19/2011 13:05	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113495708001	12/19/2011 13:05	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113495708001	12/19/2011 13:05	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113495708001	12/19/2011 13:05	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113495708001	12/19/2011 13:05	Eric L Eby	1
06966	Silver	SW-846 6010B	1	113495708001	12/19/2011 13:05	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113491026001A	12/21/2011 11:21	Choon Y Tian	2
00359	Mercury	SW-846 7471A	1	113495711001	12/16/2011 06:34	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113495708001	12/15/2011 21:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113491026001	12/15/2011 21:27	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113495711001	12/15/2011 23:15	Annamaria Stipkovits	1
00118	Moisture	SM20 2540 G	1	11350820005A	12/16/2011 19:06	Scott W Freisher	1

DHR08 8838

Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681

Analysis Report

Lancaster Laboratories

Sample Description: S11-SS04-0305-121311DUP Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499038
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 08:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

40305 SDG#: DHR08-03DUP

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
Metals		**SW-846 6010B**	**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	79.6		0.0221	1
06949	Cadmium	7440-43-9	0.995		0.0245	1
06951	Chromium	7440-47-3	21.3		0.172	1
06955	Lead	7439-92-1	14.5		0.270	1
06936	Selenium	7782-49-2	0.833	U	0.833	1
06966	Silver	7440-22-4	0.102	U	0.102	1
		SW-846 6020	**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	14.3		0.0952	2
		SW-846 7471A	**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0261	J	0.0086	1
Wet Chemistry		**SM20 2540 G**	**%**		**%**	
00118	Moisture	n.a.	19.2		0.50	1
00121	Moisture Duplicate	n.a.	18.5		0.50	1

The duplicate moisture value is provided to assess the precision of the moisture test. For comparability purposes, the initial moisture determination is the value used to perform dry weight calculations.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06946	Barium	SW-846 6010B	1	113495708001	12/19/2011 12:57	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113495708001	12/19/2011 12:57	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113495708001	12/19/2011 12:57	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113495708001	12/19/2011 12:57	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113495708001	12/20/2011 11:10	Joanne M Gates	1
06966	Silver	SW-846 6010B	1	113495708001	12/19/2011 12:57	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113491026001A	12/21/2011 11:18	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113495711001	12/16/2011 06:32	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113495708001	12/15/2011 21:25	Annamaria Stipkovits	1
I1026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113491026001	12/15/2011 21:27	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113495711001	12/15/2011 23:15	Annamaria Stipkovits	1
00118	Moisture	SM20 2540 G	1	11350820005A	12/16/2011 19:06	Scott W Freisher	1
00121	Moisture Duplicate	SM20 2540 G	1	11350820005A	12/16/2011 19:06	Scott W Freisher	1

DHR08 03DUP

Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681

Lancaster Laboratories

Sample Description: S11-SS04-0810-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499039
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 09:00 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

40810 SDG#: DHR08-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	SW-846 8260B		ug/kg		ug/kg	
10949	Acetone	67-64-1	25		8	0.89
10949	Benzene	71-43-2	0.6	U	0.6	0.89
10949	Bromobenzene	108-86-1	1	U	1	0.89
10949	Bromochloromethane	74-97-5	1	U	1	0.89
10949	Bromodichloromethane	75-27-4	1	U	1	0.89
10949	Bromoform	75-25-2	1	U	1	0.89
10949	Bromomethane	74-83-9	2	U	2	0.89
10949	2-Butanone	78-93-3	4	U	4	0.89
10949	n-Butylbenzene	104-51-8	1	U	1	0.89
10949	sec-Butylbenzene	135-98-8	1	U	1	0.89
10949	tert-Butylbenzene	98-06-6	1	U	1	0.89
10949	Carbon Disulfide	75-15-0	1	U	1	0.89
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.89
10949	Chlorobenzene	108-90-7	1	U	1	0.89
10949	Chloroethane	75-00-3	2	U	2	0.89
10949	Chloroform	67-66-3	1	U	1	0.89
10949	Chloromethane	74-87-3	2	U	2	0.89
10949	2-Chlorotoluene	95-49-8	1	U	1	0.89
10949	4-Chlorotoluene	106-43-4	1	U	1	0.89
10949	Cyclohexane	110-82-7	1	U	1	0.89
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.89
10949	Dibromochloromethane	124-48-1	1	U	1	0.89
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.89
10949	Dibromomethane	74-95-3	1	U	1	0.89
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.89
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.89
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.89
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.89
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.89
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.89
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.89
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.89
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.89
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.89
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.89
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.89
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.89
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.89
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.89
10949	Ethylbenzene	100-41-4	1	U	1	0.89
10949	Freon 113	76-13-1	2	U	2	0.89
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.89
10949	2-Hexanone	591-78-6	3	U	3	0.89
10949	Isopropylbenzene	98-82-8	1	U	1	0.89
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.89
10949	Methyl Acetate	79-20-9	2	U	2	0.89
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.6	U	0.6	0.89
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.89
10949	Methylcyclohexane	108-87-2	1	U	1	0.89
10949	Methylene Chloride	75-09-2	2	U	2	0.89
10949	Naphthalene	91-20-3	1	U	1	0.89

Lancaster Laboratories

Sample Description: S11-SS04-0810-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499039
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 09:00 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

40810 SDG#: DHR08-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg		ug/kg	
10949	n-Propylbenzene	103-65-1	1	U	1	0.89
10949	Styrene	100-42-5	1	U	1	0.89
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.89
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.89
10949	Tetrachloroethene	127-18-4	1	U	1	0.89
10949	Toluene	108-88-3	1	U	1	0.89
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.89
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.89
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.89
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.89
10949	Trichloroethene	79-01-6	1	U	1	0.89
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.89
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.89
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.89
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.89
10949	Vinyl Acetate	108-05-4	2	U	2	0.89
10949	Vinyl Chloride	75-01-4	1	U	1	0.89
10949	m+p-Xylene	179601-23-1	1	U	1	0.89
10949	o-Xylene	95-47-6	1	U	1	0.89
GC/MS Semivolatiles	**SW-846 8270C**		ug/kg		ug/kg	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	210	U	210	1
10727	1,1'-Biphenyl	92-52-4	21	U	21	1
10727	4-Bromophenyl-phenylether	101-55-3	21	U	21	1
10727	Butylbenzylphthalate	85-68-7	82	U	82	1
10727	Di-n-butylphthalate	84-74-2	82	U	82	1
10727	Carbazole	86-74-8	21	U	21	1
10727	4-Chloro-3-methylphenol	59-50-7	21	U	21	1
10727	4-Chloroaniline	106-47-8	21	U	21	1
10727	bis(2-Chloroethoxy)methane	111-91-1	21	U	21	1
10727	bis(2-Chloroethyl)ether	111-44-4	21	U	21	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	21	U	21	1
10727	4-Chlorophenyl-phenylether	7005-72-3	21	U	21	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	21	U	21	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	21	U	21	1
10727	Diethylphthalate	84-66-2	82	U	82	1
10727	2,4-Dimethylphenol	105-67-9	21	U	21	1
10727	Dimethylphthalate	131-11-3	82	U	82	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	210	U	210	1

Lancaster Laboratories

Sample Description: S11-SS04-0810-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499039
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 09:00 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

40810 SDG#: DHR08-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	410	U	410	1
10727	2,4-Dinitrotoluene	121-14-2	82	U	82	1
10727	2,6-Dinitrotoluene	606-20-2	21	U	21	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	82	U	82	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	210	U	210	1
10727	Hexachloroethane	67-72-1	41	U	41	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	21	U	21	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	21	U	21	1
10727	4-Methylphenol	106-44-5	21	U	21	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	21	U	21	1
10727	3-Nitroaniline	99-09-2	82	U	82	1
10727	4-Nitroaniline	100-01-6	82	U	82	1
10727	Nitrobenzene	98-95-3	21	U	21	1
10727	2-Nitrophenol	88-75-5	21	U	21	1
10727	4-Nitrophenol	100-02-7	210	U	210	1
10727	N-Nitroso-di-n-propylamine	621-64-7	21	U	21	1
10727	N-Nitrosodiphenylamine	86-30-6	21	U	21	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	82	U	82	1
10727	Pentachlorophenol	87-86-5	41	U	41	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	21	U	21	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	21	U	21	1
10727	2,4,6-Trichlorophenol	88-06-2	21	U	21	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	54.2		0.0218	1
06949	Cadmium	7440-43-9	0.758		0.0242	1
06951	Chromium	7440-47-3	12.7		0.169	1
06955	Lead	7439-92-1	11.1		0.266	1
06936	Selenium	7782-49-2	0.823	U	0.823	1
06966	Silver	7440-22-4	0.100	U	0.100	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	12.7		0.0959	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0148	J	0.0086	1

Lancaster Laboratories

Sample Description: S11-SS04-0810-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499039
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 09:00 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

40810 SDG#: DHR08-04

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	19.0	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113541AA	12/20/2011 17:53	Emily R Styer	0.89
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134826436	12/14/2011 13:44	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134826436	12/14/2011 13:45	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134826436	12/14/2011 13:44	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11349SLA026	12/16/2011 07:46	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11349SLA026	12/15/2011 15:30	David S Schrum	1
06946	Barium	SW-846 6010B	1	113495708001	12/19/2011 13:16	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113495708001	12/19/2011 13:16	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113495708001	12/19/2011 13:16	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113495708001	12/19/2011 13:16	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113495708001	12/19/2011 13:16	Eric L Eby	1
06966	Silver	SW-846 6010B	1	113495708001	12/19/2011 13:16	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113491026001A	12/21/2011 11:29	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113495711001	12/16/2011 06:35	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113495708001	12/15/2011 21:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113491026001	12/15/2011 21:27	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113495711001	12/15/2011 23:15	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11350820005A	12/16/2011 19:06	Scott W Freisher	1

DHR0804035

Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681

Lancaster Laboratories

Sample Description: S11-SS03-0002-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499040
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 09:20 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

30002 SDG#: DHR08-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	SW-846 8260B		ug/kg		ug/kg	
10949	Acetone	67-64-1	73		7	0.81
10949	Benzene	71-43-2	0.5	U	0.5	0.81
10949	Bromobenzene	108-86-1	1	U	1	0.81
10949	Bromochloromethane	74-97-5	1	U	1	0.81
10949	Bromodichloromethane	75-27-4	1	U	1	0.81
10949	Bromoform	75-25-2	1	U	1	0.81
10949	Bromomethane	74-83-9	2	U	2	0.81
10949	2-Butanone	78-93-3	10		4	0.81
10949	n-Butylbenzene	104-51-8	1	U	1	0.81
10949	sec-Butylbenzene	135-98-8	1	U	1	0.81
10949	tert-Butylbenzene	98-06-6	1	U	1	0.81
10949	Carbon Disulfide	75-15-0	1	U	1	0.81
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.81
10949	Chlorobenzene	108-90-7	1	U	1	0.81
10949	Chloroethane	75-00-3	2	U	2	0.81
10949	Chloroform	67-66-3	1	U	1	0.81
10949	Chloromethane	74-87-3	2	U	2	0.81
10949	2-Chlorotoluene	95-49-8	1	U	1	0.81
10949	4-Chlorotoluene	106-43-4	1	U	1	0.81
10949	Cyclohexane	110-82-7	1	U	1	0.81
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.81
10949	Dibromochloromethane	124-48-1	1	U	1	0.81
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.81
10949	Dibromomethane	74-95-3	1	U	1	0.81
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.81
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.81
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.81
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.81
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.81
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.81
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.81
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.81
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.81
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.81
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.81
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.81
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.81
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.81
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.81
10949	Ethylbenzene	100-41-4	1	U	1	0.81
10949	Freon 113	76-13-1	2	U	2	0.81
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.81
10949	2-Hexanone	591-78-6	3	U	3	0.81
10949	Isopropylbenzene	98-82-8	1	U	1	0.81
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.81
10949	Methyl Acetate	79-20-9	2	U	2	0.81
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.81
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.81
10949	Methylcyclohexane	108-87-2	1	U	1	0.81
10949	Methylene Chloride	75-09-2	2	U	2	0.81
10949	Naphthalene	91-20-3	1	U	1	0.81

DHR08 0036

Lancaster Laboratories

Sample Description: S11-SS03-0002-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499040
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 09:20 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

30002 SDG#: DHR08-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.81
10949	Styrene	100-42-5	1	U	1	0.81
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.81
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.81
10949	Tetrachloroethene	127-18-4	11		1	0.81
10949	Toluene	108-88-3	1	U	1	0.81
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.81
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.81
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.81
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.81
10949	Trichloroethene	79-01-6	1	U	1	0.81
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.81
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.81
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.81
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.81
10949	Vinyl Acetate	108-05-4	2	U	2	0.81
10949	Vinyl Chloride	75-01-4	1	U	1	0.81
10949	m+p-Xylene	179601-23-1	1	U	1	0.81
10949	o-Xylene	95-47-6	1	U	1	0.81
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	20	U	20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	81	U	81	1
10727	Di-n-butylphthalate	84-74-2	81	U	81	1
10727	Carbazole	86-74-8	20	U	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	8	U	8	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	20	U	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1
10727	Diethylphthalate	84-66-2	81	U	81	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	81	U	81	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1

DHR08 0002

Lancaster Laboratories

Sample Description: S11-SS03-0002-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499040
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 09:20 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

30002 SDG#: DHR08-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	400	U	400	1
10727	2,4-Dinitrotoluene	121-14-2	81	U	81	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	81	U	81	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	40	U	40	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	81	U	81	1
10727	4-Nitroaniline	100-01-6	81	U	81	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	81	U	81	1
10727	Pentachlorophenol	87-86-5	40	U	40	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	20	U	20	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	168		0.0212	1
06949	Cadmium	7440-43-9	0.887		0.0235	1
06951	Chromium	7440-47-3	24.5		0.165	1
06955	Lead	7439-92-1	16.3		0.259	1
06936	Selenium	7782-49-2	0.799	U	0.799	1
06966	Silver	7440-22-4	0.0976	U	0.0976	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	12.0		0.0959	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0167	J	0.0083	1

DHR08 0830

Lancaster Laboratories

Sample Description: S11-SS03-0002-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499040
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 09:20 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

30002 SDG#: DHR08-05

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	17.4	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113541AA	12/20/2011 18:15	Emily R Styer	0.81
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134826436	12/14/2011 13:46	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134826436	12/14/2011 13:47	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134826436	12/14/2011 13:46	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11349SLA026	12/16/2011 08:12	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11349SLA026	12/15/2011 15:30	David S Schrum	1
06946	Barium	SW-846 6010B	1	113495708001	12/19/2011 13:27	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113495708001	12/19/2011 13:27	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113495708001	12/19/2011 13:27	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113495708001	12/19/2011 13:27	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113495708001	12/20/2011 11:18	Joanne M Gates	1
06966	Silver	SW-846 6010B	1	113495708001	12/19/2011 13:27	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113491026001A	12/21/2011 11:30	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113495711001	12/16/2011 06:36	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113495708001	12/15/2011 21:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113491026001	12/15/2011 21:27	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113495711001	12/15/2011 23:15	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11350820005A	12/16/2011 19:06	Scott W Freisher	1

DHR08 0405

Lancaster Laboratories

Sample Description: S11-SS03-0305-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499041
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 09:25 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

30305 SDG#: DHR08-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg		ug/kg	
10949	Acetone	67-64-1	32		7	0.84
10949	Benzene	71-43-2	0.5	U	0.5	0.84
10949	Bromobenzene	108-86-1	1	U	1	0.84
10949	Bromochloromethane	74-97-5	1	U	1	0.84
10949	Bromodichloromethane	75-27-4	1	U	1	0.84
10949	Bromoform	75-25-2	1	U	1	0.84
10949	Bromomethane	74-83-9	2	U	2	0.84
10949	2-Butanone	78-93-3	4	U	4	0.84
10949	n-Butylbenzene	104-51-8	1	U	1	0.84
10949	sec-Butylbenzene	135-98-8	1	U	1	0.84
10949	tert-Butylbenzene	98-06-6	1	U	1	0.84
10949	Carbon Disulfide	75-15-0	1	U	1	0.84
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.84
10949	Chlorobenzene	108-90-7	1	U	1	0.84
10949	Chloroethane	75-00-3	2	U	2	0.84
10949	Chloroform	67-66-3	1	U	1	0.84
10949	Chloromethane	74-87-3	2	U	2	0.84
10949	2-Chlorotoluene	95-49-8	1	U	1	0.84
10949	4-Chlorotoluene	106-43-4	1	U	1	0.84
10949	Cyclohexane	110-82-7	1	U	1	0.84
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.84
10949	Dibromochloromethane	124-48-1	1	U	1	0.84
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.84
10949	Dibromomethane	74-95-3	1	U	1	0.84
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.84
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.84
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.84
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.84
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.84
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.84
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.84
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.84
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.84
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.84
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.84
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.84
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.84
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.84
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.84
10949	Ethylbenzene	100-41-4	1	U	1	0.84
10949	Freon 113	76-13-1	2	U	2	0.84
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.84
10949	2-Hexanone	591-78-6	3	U	3	0.84
10949	Isopropylbenzene	98-82-8	1	U	1	0.84
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.84
10949	Methyl Acetate	79-20-9	2	U	2	0.84
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.84
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.84
10949	Methylcyclohexane	108-87-2	1	U	1	0.84
10949	Methylene Chloride	75-09-2	2	U	2	0.84
10949	Naphthalene	91-20-3	1	U	1	0.84

Lancaster Laboratories

Sample Description: S11-SS03-0305-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499041
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 09:25 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

30305 SDG#: DHR08-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.84
10949	Styrene	100-42-5	1	U	1	0.84
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.84
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.84
10949	Tetrachloroethene	127-18-4	2	J	1	0.84
10949	Toluene	108-88-3	1	U	1	0.84
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.84
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.84
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.84
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.84
10949	Trichloroethene	79-01-6	1	U	1	0.84
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.84
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.84
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.84
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.84
10949	Vinyl Acetate	108-05-4	2	U	2	0.84
10949	Vinyl Chloride	75-01-4	1	U	1	0.84
10949	m+p-Xylene	179601-23-1	1	U	1	0.84
10949	o-Xylene	95-47-6	1	U	1	0.84
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	20	U	20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	81	U	81	1
10727	Di-n-butylphthalate	84-74-2	81	U	81	1
10727	Carbazole	86-74-8	20	U	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	20	U	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1
10727	Diethylphthalate	84-66-2	81	U	81	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	81	U	81	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1

DHR08 0641

Lancaster Laboratories

Sample Description: S11-SS03-0305-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499041
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 09:25 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

30305 SDG#: DHR08-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	410	U	410	1
10727	2,4-Dinitrotoluene	121-14-2	81	U	81	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	81	U	81	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	41	U	41	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	81	U	81	1
10727	4-Nitroaniline	100-01-6	81	U	81	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	81	U	81	1
10727	Pentachlorophenol	87-86-5	41	U	41	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	20	U	20	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	115		0.0213	1
06949	Cadmium	7440-43-9	0.963		0.0237	1
06951	Chromium	7440-47-3	22.0		0.166	1
06955	Lead	7439-92-1	13.9		0.261	1
06936	Selenium	7782-49-2	0.806	U	0.806	1
06966	Silver	7440-22-4	0.0984	U	0.0984	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	14.5		0.0967	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0314	J	0.0081	1

DHR08.0642

Lancaster Laboratories

Sample Description: S11-SS03-0305-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499041
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 09:25 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

30305 SDG#: DHR08-06

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	18.1	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113541AA	12/20/2011 18:38	Emily R Styer	0.84
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134826436	12/14/2011 13:48	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134826436	12/14/2011 13:49	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134826436	12/14/2011 13:48	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11349SLA026	12/16/2011 08:37	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11349SLA026	12/15/2011 15:30	David S Schrum	1
06946	Barium	SW-846 6010B	1	113495708001	12/19/2011 13:30	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113495708001	12/19/2011 13:30	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113495708001	12/19/2011 13:30	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113495708001	12/19/2011 13:30	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113495708001	12/19/2011 13:30	Eric L Eby	1
06966	Silver	SW-846 6010B	1	113495708001	12/19/2011 13:30	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113491026001A	12/21/2011 11:32	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113495711001	12/16/2011 06:40	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113495708001	12/15/2011 21:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113491026001	12/15/2011 21:27	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113495711001	12/15/2011 23:15	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11350820005A	12/16/2011 19:06	Scott W Freisher	1

DHR08 6643

Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681

Lancaster Laboratories

Sample Description: S11-SS03-0810-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499042
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 09:30 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

30810 SDG#: DHR08-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	SW-846 8260B		ug/kg		ug/kg	
10949	Acetone	67-64-1	38		8	0.95
10949	Benzene	71-43-2	0.6	U	0.6	0.95
10949	Bromobenzene	108-86-1	1	U	1	0.95
10949	Bromochloromethane	74-97-5	1	U	1	0.95
10949	Bromodichloromethane	75-27-4	1	U	1	0.95
10949	Bromoform	75-25-2	1	U	1	0.95
10949	Bromomethane	74-83-9	2	U	2	0.95
10949	2-Butanone	78-93-3	6	J	5	0.95
10949	n-Butylbenzene	104-51-8	1	U	1	0.95
10949	sec-Butylbenzene	135-98-8	1	U	1	0.95
10949	tert-Butylbenzene	98-06-6	1	U	1	0.95
10949	Carbon Disulfide	75-15-0	1	U	1	0.95
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.95
10949	Chlorobenzene	108-90-7	1	U	1	0.95
10949	Chloroethane	75-00-3	2	U	2	0.95
10949	Chloroform	67-66-3	1	U	1	0.95
10949	Chloromethane	74-87-3	2	U	2	0.95
10949	2-Chlorotoluene	95-49-8	1	U	1	0.95
10949	4-Chlorotoluene	106-43-4	1	U	1	0.95
10949	Cyclohexane	110-82-7	1	U	1	0.95
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.95
10949	Dibromochloromethane	124-48-1	1	U	1	0.95
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.95
10949	Dibromomethane	74-95-3	1	U	1	0.95
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.95
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.95
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.95
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.95
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.95
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.95
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.95
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.95
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.95
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.95
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.95
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.95
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.95
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.95
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.95
10949	Ethylbenzene	100-41-4	1	U	1	0.95
10949	Freon 113	76-13-1	2	U	2	0.95
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.95
10949	2-Hexanone	591-78-6	4	U	4	0.95
10949	Isopropylbenzene	98-82-8	1	U	1	0.95
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.95
10949	Methyl Acetate	79-20-9	2	U	2	0.95
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.6	U	0.6	0.95
10949	4-Methyl-2-pentanone	108-10-1	4	U	4	0.95
10949	Methylcyclohexane	108-87-2	1	U	1	0.95
10949	Methylene Chloride	75-09-2	2	U	2	0.95
10949	Naphthalene	91-20-3	1	U	1	0.95

Lancaster Laboratories

Sample Description: S11-SS03-0810-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499042
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 09:30 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

30810 SDG#: DHR08-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.95
10949	Styrene	100-42-5	1	U	1	0.95
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.95
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.95
10949	Tetrachloroethene	127-18-4	3	J	1	0.95
10949	Toluene	108-88-3	1	U	1	0.95
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.95
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.95
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.95
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.95
10949	Trichloroethene	79-01-6	1	U	1	0.95
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.95
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.95
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.95
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.95
10949	Vinyl Acetate	108-05-4	2	U	2	0.95
10949	Vinyl Chloride	75-01-4	1	U	1	0.95
10949	m+p-Xylene	179601-23-1	1	U	1	0.95
10949	o-Xylene	95-47-6	1	U	1	0.95
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	210	U	210	1
10727	1,1'-Biphenyl	92-52-4	21	U	21	1
10727	4-Bromophenyl-phenylether	101-55-3	21	U	21	1
10727	Butylbenzylphthalate	85-68-7	83	U	83	1
10727	Di-n-butylphthalate	84-74-2	83	U	83	1
10727	Carbazole	86-74-8	21	U	21	1
10727	4-Chloro-3-methylphenol	59-50-7	21	U	21	1
10727	4-Chloroaniline	106-47-8	21	U	21	1
10727	bis(2-Chloroethoxy)methane	111-91-1	21	U	21	1
10727	bis(2-Chloroethyl)ether	111-44-4	21	U	21	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	21	U	21	1
10727	4-Chlorophenyl-phenylether	7005-72-3	21	U	21	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	21	U	21	1
10727	3,3'-Dichlorobenzidine	91-94-1	130	U	130	1
10727	2,4-Dichlorophenol	120-83-2	21	U	21	1
10727	Diethylphthalate	84-66-2	83	U	83	1
10727	2,4-Dimethylphenol	105-67-9	21	U	21	1
10727	Dimethylphthalate	131-11-3	83	U	83	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	210	U	210	1

DHR08 0845

Lancaster Laboratories

Sample Description: S11-SS03-0810-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499042
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 09:30 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

30810 SDG#: DHR08-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	420	U	420	1
10727	2,4-Dinitrotoluene	121-14-2	83	U	83	1
10727	2,6-Dinitrotoluene	606-20-2	21	U	21	1
10727	1,4-Dioxane	123-91-1	130	U	130	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	83	U	83	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	210	U	210	1
10727	Hexachloroethane	67-72-1	42	U	42	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	21	U	21	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	21	U	21	1
10727	4-Methylphenol	106-44-5	21	U	21	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	21	U	21	1
10727	3-Nitroaniline	99-09-2	83	U	83	1
10727	4-Nitroaniline	100-01-6	83	U	83	1
10727	Nitrobenzene	98-95-3	21	U	21	1
10727	2-Nitrophenol	88-75-5	21	U	21	1
10727	4-Nitrophenol	100-02-7	210	U	210	1
10727	N-Nitroso-di-n-propylamine	621-64-7	21	U	21	1
10727	N-Nitrosodiphenylamine	86-30-6	21	U	21	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	83	U	83	1
10727	Pentachlorophenol	87-86-5	42	U	42	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	21	U	21	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	21	U	21	1
10727	2,4,6-Trichlorophenol	88-06-2	21	U	21	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	65.3		0.0221	1
06949	Cadmium	7440-43-9	0.793		0.0245	1
06951	Chromium	7440-47-3	13.9		0.172	1
06955	Lead	7439-92-1	11.9		0.270	1
06936	Selenium	7782-49-2	0.833	U	0.833	1
06966	Silver	7440-22-4	0.102	U	0.102	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	12.6		0.0971	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0157	J	0.0086	1

DHR08280846

Lancaster Laboratories

Sample Description: S11-SS03-0810-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499042
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 09:30 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

30810 SDG#: DHR08-07

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	20.0	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113541AA	12/20/2011 19:01	Emily R Styer	0.95
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134826436	12/14/2011 13:50	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134826436	12/14/2011 13:51	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134826436	12/14/2011 13:50	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11349SLA026	12/16/2011 09:03	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11349SLA026	12/15/2011 15:30	David S Schrum	1
06946	Barium	SW-846 6010B	1	113495708001	12/19/2011 13:34	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113495708001	12/19/2011 13:34	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113495708001	12/19/2011 13:34	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113495708001	12/19/2011 13:34	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113495708001	12/19/2011 13:34	Eric L Eby	1
06966	Silver	SW-846 6010B	1	113495708001	12/19/2011 13:34	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113491026001A	12/21/2011 11:33	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113495711001	12/16/2011 06:42	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113495708001	12/15/2011 21:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113491026001	12/15/2011 21:27	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113495711001	12/15/2011 23:15	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11350820005A	12/16/2011 19:06	Scott W Freisher	1

DHR08 0847

Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681

Lancaster Laboratories

Sample Description: S11-SS02-0002-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499043
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 09:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

20002 SDG#: DHR08-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	71		7	0.78
10949	Benzene	71-43-2	0.5	U	0.5	0.78
10949	Bromobenzene	108-86-1	1	U	1	0.78
10949	Bromochloromethane	74-97-5	1	U	1	0.78
10949	Bromodichloromethane	75-27-4	1	U	1	0.78
10949	Bromoform	75-25-2	1	U	1	0.78
10949	Bromomethane	74-83-9	2	U	2	0.78
10949	2-Butanone	78-93-3	5	J	4	0.78
10949	n-Butylbenzene	104-51-8	1	U	1	0.78
10949	sec-Butylbenzene	135-98-8	1	U	1	0.78
10949	tert-Butylbenzene	98-06-6	1	U	1	0.78
10949	Carbon Disulfide	75-15-0	1	U	1	0.78
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.78
10949	Chlorobenzene	108-90-7	1	U	1	0.78
10949	Chloroethane	75-00-3	2	U	2	0.78
10949	Chloroform	67-66-3	1	U	1	0.78
10949	Chloromethane	74-87-3	2	U	2	0.78
10949	2-Chlorotoluene	95-49-8	1	U	1	0.78
10949	4-Chlorotoluene	106-43-4	1	U	1	0.78
10949	Cyclohexane	110-82-7	1	U	1	0.78
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.78
10949	Dibromochloromethane	124-48-1	1	U	1	0.78
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.78
10949	Dibromomethane	74-95-3	1	U	1	0.78
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.78
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.78
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.78
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.78
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.78
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.78
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.78
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.78
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.78
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.78
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.78
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.78
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.78
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.78
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.78
10949	Ethylbenzene	100-41-4	1	U	1	0.78
10949	Freon 113	76-13-1	2	U	2	0.78
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.78
10949	2-Hexanone	591-78-6	3	U	3	0.78
10949	Isopropylbenzene	98-82-8	1	U	1	0.78
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.78
10949	Methyl Acetate	79-20-9	2	U	2	0.78
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.78
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.78
10949	Methylcyclohexane	108-87-2	1	U	1	0.78
10949	Methylene Chloride	75-09-2	2	U	2	0.78
10949	Naphthalene	91-20-3	1	U	1	0.78

Lancaster Laboratories

Sample Description: S11-SS02-0002-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499043
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 09:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

20002 SDG#: DHR08-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg		ug/kg	
10949	n-Propylbenzene	103-65-1	1	U	1	0.78
10949	Styrene	100-42-5	1	U	1	0.78
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.78
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.78
10949	Tetrachloroethene	127-18-4	1	U	1	0.78
10949	Toluene	108-88-3	1	U	1	0.78
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.78
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.78
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.78
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.78
10949	Trichloroethene	79-01-6	1	U	1	0.78
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.78
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.78
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.78
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.78
10949	Vinyl Acetate	108-05-4	2	U	2	0.78
10949	Vinyl Chloride	75-01-4	1	U	1	0.78
10949	m+p-Xylene	179601-23-1	1	U	1	0.78
10949	o-Xylene	95-47-6	1	U	1	0.78
GC/MS Semivolatiles	**SW-846 8270C**		ug/kg		ug/kg	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	20	U	20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	82	U	82	1
10727	Di-n-butylphthalate	84-74-2	82	U	82	1
10727	Carbazole	86-74-8	20	U	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	20	U	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1
10727	Diethylphthalate	84-66-2	82	U	82	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	82	U	82	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1

DHR08 0849

Lancaster Laboratories

Sample Description: S11-SS02-0002-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499043
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 09:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

20002 SDG#: DHR08-08

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	410	U	410	1
10727	2,4-Dinitrotoluene	121-14-2	82	U	82	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	82	U	82	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	41	U	41	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	82	U	82	1
10727	4-Nitroaniline	100-01-6	82	U	82	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	82	U	82	1
10727	Pentachlorophenol	87-86-5	41	U	41	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	20	U	20	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	112		0.0216	1
06949	Cadmium	7440-43-9	0.925		0.0240	1
06951	Chromium	7440-47-3	24.4		0.168	1
06955	Lead	7439-92-1	15.4		0.264	1
06936	Selenium	7782-49-2	0.817	U	0.817	1
06966	Silver	7440-22-4	0.0997	U	0.0997	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	13.9		0.0961	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0132	J	0.0081	1

DHR08 0858

Lancaster Laboratories

Sample Description: S11-SS02-0002-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499043
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 09:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

20002 SDG#: DHR08-08

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	18.4	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113541AA	12/20/2011 19:24	Emily R Styer	0.78
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134826436	12/14/2011 13:52	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134826436	12/14/2011 13:53	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134826436	12/14/2011 13:52	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11349SLA026	12/16/2011 09:28	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11349SLA026	12/15/2011 15:30	David S Schrum	1
06946	Barium	SW-846 6010B	1	113495708001	12/19/2011 13:37	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113495708001	12/19/2011 13:37	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113495708001	12/19/2011 13:37	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113495708001	12/19/2011 13:37	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113495708001	12/19/2011 13:37	Eric L Eby	1
06966	Silver	SW-846 6010B	1	113495708001	12/19/2011 13:37	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113491026001A	12/21/2011 11:35	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113495711001	12/16/2011 06:43	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113495708001	12/15/2011 21:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113491026001	12/15/2011 21:27	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113495711001	12/15/2011 23:15	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11350820005A	12/16/2011 19:06	Scott W Freisher	1

DHR08 0051

Lancaster Laboratories

Sample Description: HGR-121311-FD01 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499044
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HGRD- SDG#: DHR08-09FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg		ug/kg	
10949	Acetone	67-64-1	47		7	0.86
10949	Benzene	71-43-2	0.5	U	0.5	0.86
10949	Bromobenzene	108-86-1	1	U	1	0.86
10949	Bromochloromethane	74-97-5	1	U	1	0.86
10949	Bromodichloromethane	75-27-4	1	U	1	0.86
10949	Bromoform	75-25-2	1	U	1	0.86
10949	Bromomethane	74-83-9	2	U	2	0.86
10949	2-Butanone	78-93-3	5	J	4	0.86
10949	n-Butylbenzene	104-51-8	1	U	1	0.86
10949	sec-Butylbenzene	135-98-8	1	U	1	0.86
10949	tert-Butylbenzene	98-06-6	1	U	1	0.86
10949	Carbon Disulfide	75-15-0	1	U	1	0.86
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.86
10949	Chlorobenzene	108-90-7	1	U	1	0.86
10949	Chloroethane	75-00-3	2	U	2	0.86
10949	Chloroform	67-66-3	1	U	1	0.86
10949	Chloromethane	74-87-3	2	U	2	0.86
10949	2-Chlorotoluene	95-49-8	1	U	1	0.86
10949	4-Chlorotoluene	106-43-4	1	U	1	0.86
10949	Cyclohexane	110-82-7	1	U	1	0.86
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.86
10949	Dibromochloromethane	124-48-1	1	U	1	0.86
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.86
10949	Dibromomethane	74-95-3	1	U	1	0.86
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.86
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.86
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.86
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.86
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.86
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.86
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.86
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.86
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.86
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.86
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.86
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.86
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.86
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.86
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.86
10949	Ethylbenzene	100-41-4	1	U	1	0.86
10949	Freon 113	76-13-1	2	U	2	0.86
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.86
10949	2-Hexanone	591-78-6	3	U	3	0.86
10949	Isopropylbenzene	98-82-8	1	U	1	0.86
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.86
10949	Methyl Acetate	79-20-9	2	U	2	0.86
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.86
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.86
10949	Methylcyclohexane	108-87-2	1	U	1	0.86
10949	Methylene Chloride	75-09-2	2	U	2	0.86
10949	Naphthalene	91-20-3	1	U	1	0.86

Lancaster Laboratories

Sample Description: HGR-121311-FD01 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499044
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HGRD- SDG#: DHR08-09FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg		ug/kg	
10949	n-Propylbenzene	103-65-1	1	U	1	0.86
10949	Styrene	100-42-5	1	U	1	0.86
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.86
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.86
10949	Tetrachloroethene	127-18-4	7		1	0.86
10949	Toluene	108-88-3	1	U	1	0.86
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.86
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.86
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.86
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.86
10949	Trichloroethene	79-01-6	1	U	1	0.86
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.86
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.86
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.86
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.86
10949	Vinyl Acetate	108-05-4	2	U	2	0.86
10949	Vinyl Chloride	75-01-4	1	U	1	0.86
10949	m+p-Xylene	179601-23-1	1	U	1	0.86
10949	o-Xylene	95-47-6	1	U	1	0.86
GC/MS Semivolatiles	**SW-846 8270C**		ug/kg		ug/kg	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	5	J	4	1
10727	Benzo(a)pyrene	50-32-8	4	J	4	1
10727	Benzo(b)fluoranthene	205-99-2	5	J	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	20	U	20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	80	U	80	1
10727	Di-n-butylphthalate	84-74-2	80	U	80	1
10727	Carbazole	86-74-8	20	U	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	8	U	8	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	5	J	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	20	U	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1
10727	Diethylphthalate	84-66-2	80	U	80	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	80	U	80	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1

DHR08 0953

Lancaster Laboratories

Sample Description: HGR-121311-FD01 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499044
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HGRD- SDG#: DHR08-09FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	400	U	400	1
10727	2,4-Dinitrotoluene	121-14-2	80	U	80	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	80	U	80	1
10727	Fluoranthene	206-44-0	8	J	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	40	U	40	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	80	U	80	1
10727	4-Nitroaniline	100-01-6	80	U	80	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	80	U	80	1
10727	Pentachlorophenol	87-86-5	40	U	40	1
10727	Phenanthrene	85-01-8	6	J	4	1
10727	Phenol	108-95-2	20	U	20	1
10727	Pyrene	129-00-0	8	J	4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	187		0.0208	1
06949	Cadmium	7440-43-9	0.809		0.0231	1
06951	Chromium	7440-47-3	20.5		0.162	1
06955	Lead	7439-92-1	13.8		0.255	1
06936	Selenium	7782-49-2	1.35	J	0.787	1
06966	Silver	7440-22-4	0.0960	U	0.0960	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	11.7		0.0944	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0161	J	0.0080	1

DHR08 0854

Lancaster Laboratories

Sample Description: HGR-121311-FD01 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499044
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

HGRD- SDG#: DHR08-09FD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	16.9	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113541AA	12/20/2011 19:47	Emily R Styer	0.86
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134826436	12/14/2011 13:55	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134826436	12/14/2011 13:55	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134826436	12/14/2011 13:54	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11349SLA026	12/16/2011 09:54	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11349SLA026	12/15/2011 15:30	David S Schrum	1
06946	Barium	SW-846 6010B	1	113495708001	12/19/2011 13:41	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113495708001	12/19/2011 13:41	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113495708001	12/19/2011 13:41	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113495708001	12/19/2011 13:41	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113495708001	12/20/2011 11:22	Joanne M Gates	1
06966	Silver	SW-846 6010B	1	113495708001	12/19/2011 13:41	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113491026001A	12/21/2011 11:37	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113495711001	12/16/2011 06:44	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113495708001	12/15/2011 21:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113491026001	12/15/2011 21:27	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113495711001	12/15/2011 23:15	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11350820005A	12/16/2011 19:06	Scott W Freisher	1

DHR08 8855

Lancaster Laboratories

Sample Description: S11-SS02-0305-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499045
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:00 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

20305 SDG#: DHR08-10

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	SW-846 8260B		ug/kg		ug/kg	
10949	Acetone	67-64-1	37		7	0.86
10949	Benzene	71-43-2	0.7	J	0.5	0.86
10949	Bromobenzene	108-86-1	1	U	1	0.86
10949	Bromochloromethane	74-97-5	1	U	1	0.86
10949	Bromodichloromethane	75-27-4	1	U	1	0.86
10949	Bromoform	75-25-2	1	U	1	0.86
10949	Bromomethane	74-83-9	2	U	2	0.86
10949	2-Butanone	78-93-3	5	J	4	0.86
10949	n-Butylbenzene	104-51-8	1	U	1	0.86
10949	sec-Butylbenzene	135-98-8	1	U	1	0.86
10949	tert-Butylbenzene	98-06-6	1	U	1	0.86
10949	Carbon Disulfide	75-15-0	1	U	1	0.86
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.86
10949	Chlorobenzene	108-90-7	1	U	1	0.86
10949	Chloroethane	75-00-3	2	U	2	0.86
10949	Chloroform	67-66-3	1	U	1	0.86
10949	Chloromethane	74-87-3	2	U	2	0.86
10949	2-Chlorotoluene	95-49-8	1	U	1	0.86
10949	4-Chlorotoluene	106-43-4	1	U	1	0.86
10949	Cyclohexane	110-82-7	1	J	1	0.86
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.86
10949	Dibromochloromethane	124-48-1	1	U	1	0.86
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.86
10949	Dibromomethane	74-95-3	1	U	1	0.86
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.86
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.86
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.86
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.86
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.86
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.86
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.86
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.86
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.86
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.86
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.86
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.86
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.86
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.86
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.86
10949	Ethylbenzene	100-41-4	1	U	1	0.86
10949	Freon 113	76-13-1	2	U	2	0.86
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.86
10949	2-Hexanone	591-78-6	3	U	3	0.86
10949	Isopropylbenzene	98-82-8	1	U	1	0.86
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.86
10949	Methyl Acetate	79-20-9	2	U	2	0.86
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.86
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.86
10949	Methylcyclohexane	108-87-2	1	J	1	0.86
10949	Methylene Chloride	75-09-2	2	U	2	0.86
10949	Naphthalene	91-20-3	1	U	1	0.86

Lancaster Laboratories

Sample Description: S11-SS02-0305-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499045
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:00 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

20305 SDG#: DHR08-10

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.86
10949	Styrene	100-42-5	1	U	1	0.86
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.86
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.86
10949	Tetrachloroethene	127-18-4	1	U	1	0.86
10949	Toluene	108-88-3	2	J	1	0.86
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.86
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.86
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.86
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.86
10949	Trichloroethene	79-01-6	1	U	1	0.86
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.86
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.86
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.86
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.86
10949	Vinyl Acetate	108-05-4	2	U	2	0.86
10949	Vinyl Chloride	75-01-4	1	U	1	0.86
10949	m+p-Xylene	179601-23-1	1	U	1	0.86
10949	o-Xylene	95-47-6	1	U	1	0.86
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	210	U	210	1
10727	1,1'-Biphenyl	92-52-4	21	U	21	1
10727	4-Bromophenyl-phenylether	101-55-3	21	U	21	1
10727	Butylbenzylphthalate	85-68-7	83	U	83	1
10727	Di-n-butylphthalate	84-74-2	83	U	83	1
10727	Carbazole	86-74-8	21	U	21	1
10727	4-Chloro-3-methylphenol	59-50-7	21	U	21	1
10727	4-Chloroaniline	106-47-8	21	U	21	1
10727	bis(2-Chloroethoxy)methane	111-91-1	21	U	21	1
10727	bis(2-Chloroethyl)ether	111-44-4	21	U	21	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	21	U	21	1
10727	4-Chlorophenyl-phenylether	7005-72-3	21	U	21	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	21	U	21	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	21	U	21	1
10727	Diethylphthalate	84-66-2	83	U	83	1
10727	2,4-Dimethylphenol	105-67-9	21	U	21	1
10727	Dimethylphthalate	131-11-3	83	U	83	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	210	U	210	1

DHR08-10857

Lancaster Laboratories

Sample Description: S11-SS02-0305-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499045
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:00 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

20305 SDG#: DHR08-10

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	410	U	410	1
10727	2,4-Dinitrotoluene	121-14-2	83	U	83	1
10727	2,6-Dinitrotoluene	606-20-2	21	U	21	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	83	U	83	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	210	U	210	1
10727	Hexachloroethane	67-72-1	41	U	41	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	21	U	21	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	21	U	21	1
10727	4-Methylphenol	106-44-5	21	U	21	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	21	U	21	1
10727	3-Nitroaniline	99-09-2	83	U	83	1
10727	4-Nitroaniline	100-01-6	83	U	83	1
10727	Nitrobenzene	98-95-3	21	U	21	1
10727	2-Nitrophenol	88-75-5	21	U	21	1
10727	4-Nitrophenol	100-02-7	210	U	210	1
10727	N-Nitroso-di-n-propylamine	621-64-7	21	U	21	1
10727	N-Nitrosodiphenylamine	86-30-6	21	U	21	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	83	U	83	1
10727	Pentachlorophenol	87-86-5	41	U	41	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	21	U	21	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	21	U	21	1
10727	2,4,6-Trichlorophenol	88-06-2	21	U	21	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	90.5		0.0216	1
06949	Cadmium	7440-43-9	0.950		0.0240	1
06951	Chromium	7440-47-3	23.9		0.166	1
06955	Lead	7439-92-1	12.8		0.264	1
06936	Selenium	7782-49-2	0.817	U	0.817	1
06966	Silver	7440-22-4	0.0997	U	0.0997	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	14.3		0.0971	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0294	J	0.0081	1

Lancaster Laboratories

Sample Description: S11-SS02-0305-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499045
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:00 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

20305 SDG#: DHR08-10

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	19.2	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113541AA	12/20/2011 20:09	Emily R Styer	0.86
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134826436	12/14/2011 13:57	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134826436	12/14/2011 13:57	Larry E Bevins	n.a.
07576	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134826436	12/14/2011 13:56	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11349SLA026	12/16/2011 10:20	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11349SLA026	12/15/2011 15:30	David S Schrum	1
06946	Barium	SW-846 6010B	1	113495708001	12/19/2011 13:45	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113495708001	12/19/2011 13:45	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113495708001	12/19/2011 13:45	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113495708001	12/19/2011 13:45	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113495708001	12/20/2011 11:26	Joanne M Gates	1
06966	Silver	SW-846 6010B	1	113495708001	12/19/2011 13:45	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113491026001A	12/21/2011 11:38	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113495711001	12/16/2011 06:46	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113495708001	12/15/2011 21:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113491026001	12/15/2011 21:27	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113495711001	12/15/2011 23:15	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11350820005B	12/16/2011 19:06	Scott W Freisher	1

DHR08 0059

Lancaster Laboratories

Sample Description: S11-SS02-0810-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499046
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:05 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

20810 SDG#: DHR08-11

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	SW-846 8260B		ug/kg		ug/kg	
10949	Acetone	67-64-1	29		8	0.87
10949	Benzene	71-43-2	0.5	U	0.5	0.87
10949	Bromobenzene	108-86-1	1	U	1	0.87
10949	Bromochloromethane	74-97-5	1	U	1	0.87
10949	Bromodichloromethane	75-27-4	1	U	1	0.87
10949	Bromoform	75-25-2	1	U	1	0.87
10949	Bromomethane	74-83-9	2	U	2	0.87
10949	2-Butanone	78-93-3	4	U	4	0.87
10949	n-Butylbenzene	104-51-8	1	U	1	0.87
10949	sec-Butylbenzene	135-98-8	1	U	1	0.87
10949	tert-Butylbenzene	98-06-6	1	U	1	0.87
10949	Carbon Disulfide	75-15-0	1	U	1	0.87
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.87
10949	Chlorobenzene	108-90-7	1	U	1	0.87
10949	Chloroethane	75-00-3	2	U	2	0.87
10949	Chloroform	67-66-3	1	U	1	0.87
10949	Chloromethane	74-87-3	2	U	2	0.87
10949	2-Chlorotoluene	95-49-8	1	U	1	0.87
10949	4-Chlorotoluene	106-43-4	1	U	1	0.87
10949	Cyclohexane	110-82-7	1	U	1	0.87
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.87
10949	Dibromochloromethane	124-48-1	1	U	1	0.87
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.87
10949	Dibromomethane	74-95-3	1	U	1	0.87
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.87
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.87
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.87
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.87
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.87
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.87
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.87
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.87
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.87
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.87
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.87
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.87
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.87
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.87
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.87
10949	Ethylbenzene	100-41-4	1	U	1	0.87
10949	Freon 113	76-13-1	2	U	2	0.87
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.87
10949	2-Hexanone	591-78-6	3	U	3	0.87
10949	Isopropylbenzene	98-82-8	1	U	1	0.87
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.87
10949	Methyl Acetate	79-20-9	2	U	2	0.87
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.87
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.87
10949	Methylcyclohexane	108-87-2	1	U	1	0.87
10949	Methylene Chloride	75-09-2	2	U	2	0.87
10949	Naphthalene	91-20-3	1	U	1	0.87

Lancaster Laboratories

Sample Description: S11-SS02-0810-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499046
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:05 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

20810 SDG#: DHR08-11

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.87
10949	Styrene	100-42-5	1	U	1	0.87
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.87
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.87
10949	Tetrachloroethene	127-18-4	1	U	1	0.87
10949	Toluene	108-88-3	1	U	1	0.87
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.87
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.87
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.87
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.87
10949	Trichloroethene	79-01-6	1	U	1	0.87
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.87
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.87
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.87
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.87
10949	Vinyl Acetate	108-05-4	2	U	2	0.87
10949	Vinyl Chloride	75-01-4	1	U	1	0.87
10949	m+p-Xylene	179601-23-1	1	U	1	0.87
10949	o-Xylene	95-47-6	1	U	1	0.87
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	210	U	210	1
10727	1,1'-Biphenyl	92-52-4	21	U	21	1
10727	4-Bromophenyl-phenylether	101-55-3	21	U	21	1
10727	Butylbenzylphthalate	85-68-7	83	U	83	1
10727	Di-n-butylphthalate	84-74-2	83	U	83	1
10727	Carbazole	86-74-8	21	U	21	1
10727	4-Chloro-3-methylphenol	59-50-7	21	U	21	1
10727	4-Chloroaniline	106-47-8	21	U	21	1
10727	bis(2-Chloroethoxy)methane	111-91-1	21	U	21	1
10727	bis(2-Chloroethyl)ether	111-44-4	21	U	21	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	21	U	21	1
10727	4-Chlorophenyl-phenylether	7005-72-3	21	U	21	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	21	U	21	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	21	U	21	1
10727	Diethylphthalate	84-66-2	83	U	83	1
10727	2,4-Dimethylphenol	105-67-9	21	U	21	1
10727	Dimethylphthalate	131-11-3	83	U	83	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	210	U	210	1

DHR08 0261

Lancaster Laboratories

Sample Description: S11-SS02-0810-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499046
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:05 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

20810 SDG#: DHR08-11

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	420	U	420	1
10727	2,4-Dinitrotoluene	121-14-2	83	U	83	1
10727	2,6-Dinitrotoluene	606-20-2	21	U	21	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	83	U	83	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	210	U	210	1
10727	Hexachloroethane	67-72-1	42	U	42	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	21	U	21	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	21	U	21	1
10727	4-Methylphenol	106-44-5	21	U	21	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	21	U	21	1
10727	3-Nitroaniline	99-09-2	83	U	83	1
10727	4-Nitroaniline	100-01-6	83	U	83	1
10727	Nitrobenzene	98-95-3	21	U	21	1
10727	2-Nitrophenol	88-75-5	21	U	21	1
10727	4-Nitrophenol	100-02-7	210	U	210	1
10727	N-Nitroso-di-n-propylamine	621-64-7	21	U	21	1
10727	N-Nitrosodiphenylamine	86-30-6	21	U	21	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	83	U	83	1
10727	Pentachlorophenol	87-86-5	42	U	42	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	21	U	21	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	21	U	21	1
10727	2,4,6-Trichlorophenol	88-06-2	21	U	21	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	77.3		0.0222	1
06949	Cadmium	7440-43-9	0.808		0.0247	1
06951	Chromium	7440-47-3	15.5		0.173	1
06955	Lead	7439-92-1	10.8		0.272	1
06936	Selenium	7782-49-2	0.841	U	0.841	1
06966	Silver	7440-22-4	0.103	U	0.103	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	12.7		0.0970	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0205	J	0.0083	1

DHR08 0852

Lancaster Laboratories

Sample Description: S11-SS02-0810-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499046
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:05 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

20810 SDG#: DHR08-11

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	19.9	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113541AA	12/20/2011 20:32	Emily R Styer	0.87
06389	GC/MS - LL Encore Prep	SW-846 5035	1	201134826436	12/14/2011 13:59	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134826436	12/14/2011 13:59	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134826436	12/14/2011 13:58	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11349SLA026	12/16/2011 10:45	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11349SLA026	12/15/2011 15:30	David S Schrum	1
06946	Barium	SW-846 6010B	1	113495708001	12/19/2011 13:48	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113495708001	12/19/2011 13:48	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113495708001	12/19/2011 13:48	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113495708001	12/19/2011 13:48	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113495708001	12/19/2011 13:48	Eric L Eby	1
06966	Silver	SW-846 6010B	1	113495708001	12/19/2011 13:48	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113491026001A	12/21/2011 11:40	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113495711001	12/16/2011 06:47	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113495708001	12/15/2011 21:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113491026001	12/15/2011 21:27	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113495711001	12/15/2011 23:15	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11350820005B	12/16/2011 19:06	Scott W Freisher	1

DHR08 0853

Lancaster Laboratories

Sample Description: S11-SS01-0002-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499047
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:20 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

10002 SDG#: DHR08-12

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	120		8	0.91
10949	Benzene	71-43-2	0.6	U	0.6	0.91
10949	Bromobenzene	108-86-1	1	U	1	0.91
10949	Bromochloromethane	74-97-5	1	U	1	0.91
10949	Bromodichloromethane	75-27-4	1	U	1	0.91
10949	Bromoform	75-25-2	1	U	1	0.91
10949	Bromomethane	74-83-9	2	U	2	0.91
10949	2-Butanone	78-93-3	18		4	0.91
10949	n-Butylbenzene	104-51-8	1	U	1	0.91
10949	sec-Butylbenzene	135-98-8	1	U	1	0.91
10949	tert-Butylbenzene	98-06-6	1	U	1	0.91
10949	Carbon Disulfide	75-15-0	1	J	1	0.91
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.91
10949	Chlorobenzene	108-90-7	1	U	1	0.91
10949	Chloroethane	75-00-3	2	U	2	0.91
10949	Chloroform	67-66-3	1	U	1	0.91
10949	Chloromethane	74-87-3	2	U	2	0.91
10949	2-Chlorotoluene	95-49-8	1	U	1	0.91
10949	4-Chlorotoluene	106-43-4	1	U	1	0.91
10949	Cyclohexane	110-82-7	1	U	1	0.91
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.91
10949	Dibromochloromethane	124-48-1	1	U	1	0.91
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.91
10949	Dibromomethane	74-95-3	1	U	1	0.91
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.91
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.91
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.91
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.91
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.91
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.91
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.91
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.91
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.91
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.91
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.91
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.91
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.91
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.91
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.91
10949	Ethylbenzene	100-41-4	1	U	1	0.91
10949	Freon 113	76-13-1	2	U	2	0.91
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.91
10949	2-Hexanone	591-78-6	3	U	3	0.91
10949	Isopropylbenzene	98-82-8	1	U	1	0.91
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.91
10949	Methyl Acetate	79-20-9	2	U	2	0.91
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.6	U	0.6	0.91
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.91
10949	Methylcyclohexane	108-87-2	1	U	1	0.91
10949	Methylene Chloride	75-09-2	2	U	2	0.91
10949	Naphthalene	91-20-3	1	U	1	0.91

Lancaster Laboratories

Sample Description: S11-SS01-0002-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499047
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:20 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

10002 SDG#: DHR08-12

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg		ug/kg	
10949	n-Propylbenzene	103-65-1	1	U	1	0.91
10949	Styrene	100-42-5	1	U	1	0.91
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.91
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.91
10949	Tetrachloroethene	127-18-4	5	J	1	0.91
10949	Toluene	108-88-3	1	U	1	0.91
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.91
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.91
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.91
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.91
10949	Trichloroethene	79-01-6	1	U	1	0.91
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.91
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.91
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.91
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.91
10949	Vinyl Acetate	108-05-4	2	U	2	0.91
10949	Vinyl Chloride	75-01-4	1	U	1	0.91
10949	m+p-Xylene	179601-23-1	1	U	1	0.91
10949	o-Xylene	95-47-6	1	U	1	0.91
GC/MS Semivolatiles	**SW-846 8270C**		ug/kg		ug/kg	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	20	U	20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	82	U	82	1
10727	Di-n-butylphthalate	84-74-2	82	U	82	1
10727	Carbazole	86-74-8	20	U	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	20	U	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1
10727	Diethylphthalate	84-66-2	82	U	82	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	82	U	82	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1

Lancaster Laboratories

Sample Description: S11-SS01-0002-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499047
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:20 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

10002 SDG#: DHR08-12

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	410	U	410	1
10727	2,4-Dinitrotoluene	121-14-2	82	U	82	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	82	U	82	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	41	U	41	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	82	U	82	1
10727	4-Nitroaniline	100-01-6	82	U	82	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	82	U	82	1
10727	Pentachlorophenol	87-86-5	41	U	41	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	20	U	20	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	147		0.0215	1
06949	Cadmium	7440-43-9	0.970		0.0239	1
06951	Chromium	7440-47-3	24.0		0.167	1
06955	Lead	7439-92-1	16.0		0.262	1
06936	Selenium	7782-49-2	0.811	U	0.811	1
06966	Silver	7440-22-4	0.0990	U	0.0990	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	13.8		0.0954	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0178	J	0.0082	1

DHR08 8866

Lancaster Laboratories

Sample Description: S11-SS01-0002-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499047
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:20 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

10002 SDG#: DHR08-12

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	18.6	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113541AA	12/20/2011 20:55	Emily R Styer	0.91
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134826436	12/14/2011 14:01	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134826436	12/14/2011 14:01	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134826436	12/14/2011 14:01	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11349SLA026	12/16/2011 11:11	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11349SLA026	12/15/2011 15:30	David S Schrum	1
06946	Barium	SW-846 6010B	1	113495708001	12/19/2011 13:52	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113495708001	12/19/2011 13:52	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113495708001	12/19/2011 13:52	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113495708001	12/19/2011 13:52	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113495708001	12/20/2011 11:30	Joanne M Gates	1
06966	Silver	SW-846 6010B	1	113495708001	12/19/2011 13:52	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113491026001A	12/21/2011 11:41	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113495711001	12/16/2011 06:48	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113495708001	12/15/2011 21:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113491026001	12/15/2011 21:27	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113495711001	12/15/2011 23:15	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11350820005B	12/16/2011 19:06	Scott W Freisher	1

DHR08 0007

Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681

Lancaster Laboratories

Sample Description: S11-SS01-0308-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499048
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:25 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

10308 SDG#: DHR08-13

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	32		8	0.88
10949	Benzene	71-43-2	0.5	U	0.5	0.88
10949	Bromobenzene	108-86-1	1	U	1	0.88
10949	Bromochloromethane	74-97-5	1	U	1	0.88
10949	Bromodichloromethane	75-27-4	1	U	1	0.88
10949	Bromoform	75-25-2	1	U	1	0.88
10949	Bromomethane	74-83-9	2	U	2	0.88
10949	2-Butanone	78-93-3	4	U	4	0.88
10949	n-Butylbenzene	104-51-8	1	U	1	0.88
10949	sec-Butylbenzene	135-98-8	1	U	1	0.88
10949	tert-Butylbenzene	98-06-6	1	U	1	0.88
10949	Carbon Disulfide	75-15-0	1	U	1	0.88
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.88
10949	Chlorobenzene	108-90-7	1	U	1	0.88
10949	Chloroethane	75-00-3	2	U	2	0.88
10949	Chloroform	67-66-3	1	U	1	0.88
10949	Chloromethane	74-87-3	2	U	2	0.88
10949	2-Chlorotoluene	95-49-8	1	U	1	0.88
10949	4-Chlorotoluene	106-43-4	1	U	1	0.88
10949	Cyclohexane	110-82-7	1	U	1	0.88
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.88
10949	Dibromochloromethane	124-48-1	1	U	1	0.88
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.88
10949	Dibromomethane	74-95-3	1	U	1	0.88
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.88
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.88
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.88
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.88
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.88
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.88
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.88
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.88
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.88
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.88
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.88
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.88
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.88
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.88
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.88
10949	Ethylbenzene	100-41-4	1	U	1	0.88
10949	Freon 113	76-13-1	2	U	2	0.88
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.88
10949	2-Hexanone	591-78-6	3	U	3	0.88
10949	Isopropylbenzene	98-82-8	1	U	1	0.88
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.88
10949	Methyl Acetate	79-20-9	2	U	2	0.88
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.88
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.88
10949	Methylcyclohexane	108-87-2	1	U	1	0.88
10949	Methylene Chloride	75-09-2	2	U	2	0.88
10949	Naphthalene	91-20-3	1	U	1	0.88

Lancaster Laboratories

Sample Description: S11-SS01-0308-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499048
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:25 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

10308 SDG#: DHR08-13

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg		ug/kg	
10949	n-Propylbenzene	103-65-1	1	U	1	0.88
10949	Styrene	100-42-5	1	U	1	0.88
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.88
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.88
10949	Tetrachloroethene	127-18-4	1	U	1	0.88
10949	Toluene	108-88-3	1	U	1	0.88
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.88
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.88
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.88
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.88
10949	Trichloroethene	79-01-6	1	U	1	0.88
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.88
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.88
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.88
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.88
10949	Vinyl Acetate	108-05-4	2	U	2	0.88
10949	Vinyl Chloride	75-01-4	1	U	1	0.88
10949	m+p-Xylene	179601-23-1	1	U	1	0.88
10949	o-Xylene	95-47-6	1	U	1	0.88
GC/MS Semivolatiles	**SW-846 8270C**		ug/kg		ug/kg	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	210	U	210	1
10727	1,1'-Biphenyl	92-52-4	21	U	21	1
10727	4-Bromophenyl-phenylether	101-55-3	21	U	21	1
10727	Butylbenzylphthalate	85-68-7	82	U	82	1
10727	Di-n-butylphthalate	84-74-2	82	U	82	1
10727	Carbazole	86-74-8	21	U	21	1
10727	4-Chloro-3-methylphenol	59-50-7	21	U	21	1
10727	4-Chloroaniline	106-47-8	21	U	21	1
10727	bis(2-Chloroethoxy)methane	111-91-1	21	U	21	1
10727	bis(2-Chloroethyl)ether	111-44-4	21	U	21	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	21	U	21	1
10727	4-Chlorophenyl-phenylether	7005-72-3	21	U	21	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	21	U	21	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	21	U	21	1
10727	Diethylphthalate	84-66-2	82	U	82	1
10727	2,4-Dimethylphenol	105-67-9	21	U	21	1
10727	Dimethylphthalate	131-11-3	82	U	82	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	210	U	210	1

DHR08 8865

Lancaster Laboratories

Sample Description: S11-SS01-0308-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499048
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:25 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

10308 SDG#: DHR08-13

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	410	U	410	1
10727	2,4-Dinitrotoluene	121-14-2	82	U	82	1
10727	2,6-Dinitrotoluene	606-20-2	21	U	21	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	82	U	82	1
10727	Fluoranthene	206-44-0	4	J	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	210	U	210	1
10727	Hexachloroethane	67-72-1	41	U	41	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	21	U	21	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	21	U	21	1
10727	4-Methylphenol	106-44-5	21	U	21	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	21	U	21	1
10727	3-Nitroaniline	99-09-2	82	U	82	1
10727	4-Nitroaniline	100-01-6	82	U	82	1
10727	Nitrobenzene	98-95-3	21	U	21	1
10727	2-Nitrophenol	88-75-5	21	U	21	1
10727	4-Nitrophenol	100-02-7	210	U	210	1
10727	N-Nitroso-di-n-propylamine	621-64-7	21	U	21	1
10727	N-Nitrosodiphenylamine	86-30-6	21	U	21	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	82	U	82	1
10727	Pentachlorophenol	87-86-5	41	U	41	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	21	U	21	1
10727	Pyrene	129-00-0	6	J	4	1
10727	2,4,5-Trichlorophenol	95-95-4	21	U	21	1
10727	2,4,6-Trichlorophenol	88-06-2	21	U	21	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	113		0.0213	1
06949	Cadmium	7440-43-9	1.00		0.0237	1
06951	Chromium	7440-47-3	24.3		0.166	1
06955	Lead	7439-92-1	13.4		0.261	1
06936	Selenium	7782-49-2	0.805	U	0.805	1
06966	Silver	7440-22-4	0.0983	U	0.0983	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	14.9		0.0947	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0246	J	0.0084	1

DHR08-0878

Lancaster Laboratories

Sample Description: S11-SS01-0308-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499048
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:25 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

10308 SDG#: DHR08-13

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	18.8	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113541AA	12/20/2011 21:17	Emily R Styer	0.88
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134826436	12/14/2011 14:03	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134826436	12/14/2011 14:03	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134826436	12/14/2011 14:03	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11349SLA026	12/16/2011 11:36	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11349SLA026	12/15/2011 15:30	David S Schrum	1
06946	Barium	SW-846 6010B	1	113495708001	12/19/2011 13:56	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113495708001	12/19/2011 13:56	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113495708001	12/19/2011 13:56	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113495708001	12/19/2011 13:56	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113495708001	12/20/2011 11:35	Joanne M Gates	1
06966	Silver	SW-846 6010B	1	113495708001	12/19/2011 13:56	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113491026001A	12/21/2011 11:46	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113495711001	12/16/2011 06:49	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113495708001	12/15/2011 21:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113491026001	12/15/2011 21:27	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113495711001	12/15/2011 23:15	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11350820005B	12/16/2011 19:06	Scott W Freisher	1

Lancaster Laboratories

Sample Description: S11-SS01-0810-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499049
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:30 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

10810 SDG#: DHR08-14

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	SW-846 8260B		ug/kg		ug/kg	
10949	Acetone	67-64-1	35		8	0.88
10949	Benzene	71-43-2	0.6	U	0.6	0.88
10949	Bromobenzene	108-86-1	1	U	1	0.88
10949	Bromochloromethane	74-97-5	1	U	1	0.88
10949	Bromodichloromethane	75-27-4	1	U	1	0.88
10949	Bromoform	75-25-2	1	U	1	0.88
10949	Bromomethane	74-83-9	2	U	2	0.88
10949	2-Butanone	78-93-3	5	J	5	0.88
10949	n-Butylbenzene	104-51-8	1	U	1	0.88
10949	sec-Butylbenzene	135-98-8	1	U	1	0.88
10949	tert-Butylbenzene	98-06-6	1	U	1	0.88
10949	Carbon Disulfide	75-15-0	1	U	1	0.88
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.88
10949	Chlorobenzene	108-90-7	1	U	1	0.88
10949	Chloroethane	75-00-3	2	U	2	0.88
10949	Chloroform	67-66-3	1	U	1	0.88
10949	Chloromethane	74-87-3	2	U	2	0.88
10949	2-Chlorotoluene	95-49-8	1	U	1	0.88
10949	4-Chlorotoluene	106-43-4	1	U	1	0.88
10949	Cyclohexane	110-82-7	1	U	1	0.88
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.88
10949	Dibromochloromethane	124-48-1	1	U	1	0.88
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.88
10949	Dibromomethane	74-95-3	1	U	1	0.88
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.88
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.88
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.88
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.88
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.88
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.88
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.88
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.88
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.88
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.88
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.88
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.88
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.88
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.88
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.88
10949	Ethylbenzene	100-41-4	1	U	1	0.88
10949	Freon 113	76-13-1	2	U	2	0.88
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.88
10949	2-Hexanone	591-78-6	3	U	3	0.88
10949	Isopropylbenzene	98-82-8	1	U	1	0.88
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.88
10949	Methyl Acetate	79-20-9	2	U	2	0.88
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.6	U	0.6	0.88
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.88
10949	Methylcyclohexane	108-87-2	1	U	1	0.88
10949	Methylene Chloride	75-09-2	2	U	2	0.88
10949	Naphthalene	91-20-3	1	U	1	0.88

Lancaster Laboratories

Sample Description: S11-SS01-0810-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499049
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:30 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

10810 SDG#: DHR08-14

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg		ug/kg	
10949	n-Propylbenzene	103-65-1	1	U	1	0.88
10949	Styrene	100-42-5	1	U	1	0.88
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.88
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.88
10949	Tetrachloroethene	127-18-4	1	U	1	0.88
10949	Toluene	108-88-3	1	U	1	0.88
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.88
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.88
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.88
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.88
10949	Trichloroethene	79-01-6	1	U	1	0.88
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.88
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.88
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.88
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.88
10949	Vinyl Acetate	108-05-4	2	U	2	0.88
10949	Vinyl Chloride	75-01-4	1	U	1	0.88
10949	m+p-Xylene	179601-23-1	1	U	1	0.88
10949	o-Xylene	95-47-6	1	U	1	0.88
GC/MS Semivolatiles	**SW-846 8270C**		ug/kg		ug/kg	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	220	U	220	1
10727	1,1'-Biphenyl	92-52-4	22	U	22	1
10727	4-Bromophenyl-phenylether	101-55-3	22	U	22	1
10727	Butylbenzylphthalate	85-68-7	86	U	86	1
10727	Di-n-butylphthalate	84-74-2	86	U	86	1
10727	Carbazole	86-74-8	22	U	22	1
10727	4-Chloro-3-methylphenol	59-50-7	22	U	22	1
10727	4-Chloroaniline	106-47-8	22	U	22	1
10727	bis(2-Chloroethoxy)methane	111-91-1	22	U	22	1
10727	bis(2-Chloroethyl)ether	111-44-4	22	U	22	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	22	U	22	1
10727	4-Chlorophenyl-phenylether	7005-72-3	22	U	22	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	22	U	22	1
10727	3,3'-Dichlorobenzidine	91-94-1	130	U	130	1
10727	2,4-Dichlorophenol	120-83-2	22	U	22	1
10727	Diethylphthalate	84-66-2	86	U	86	1
10727	2,4-Dimethylphenol	105-67-9	22	U	22	1
10727	Dimethylphthalate	131-11-3	86	U	86	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	220	U	220	1

DHR08 6873

Lancaster Laboratories

Sample Description: S11-SS01-0810-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499049
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:30 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

10810 SDG#: DHR08-14

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	430	U	430	1
10727	2,4-Dinitrotoluene	121-14-2	86	U	86	1
10727	2,6-Dinitrotoluene	606-20-2	22	U	22	1
10727	1,4-Dioxane	123-91-1	130	U	130	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	86	U	86	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	220	U	220	1
10727	Hexachloroethane	67-72-1	43	U	43	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	22	U	22	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	22	U	22	1
10727	4-Methylphenol	106-44-5	22	U	22	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	22	U	22	1
10727	3-Nitroaniline	99-09-2	86	U	86	1
10727	4-Nitroaniline	100-01-6	86	U	86	1
10727	Nitrobenzene	98-95-3	22	U	22	1
10727	2-Nitrophenol	88-75-5	22	U	22	1
10727	4-Nitrophenol	100-02-7	220	U	220	1
10727	N-Nitroso-di-n-propylamine	621-64-7	22	U	22	1
10727	N-Nitrosodiphenylamine	86-30-6	22	U	22	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	86	U	86	1
10727	Pentachlorophenol	87-86-5	43	U	43	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	22	U	22	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	22	U	22	1
10727	2,4,6-Trichlorophenol	88-06-2	22	U	22	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	67.8		0.0230	1
06949	Cadmium	7440-43-9	0.836		0.0256	1
06951	Chromium	7440-47-3	14.0		0.179	1
06955	Lead	7439-92-1	11.6		0.281	1
06936	Selenium	7782-49-2	0.869	U	0.869	1
06966	Silver	7440-22-4	0.106	U	0.106	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	13.0		0.100	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0118	J	0.0087	1

DHR08 0074

Lancaster Laboratories

Sample Description: S11-SS01-0810-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499049
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:30 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

10810 SDG#: DHR08-14

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	22.5	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113541AA	12/20/2011 21:40	Emily R Styer	0.88
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134826436	12/14/2011 14:05	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134826436	12/14/2011 14:05	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134826436	12/14/2011 14:05	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11349SLA026	12/16/2011 12:02	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11349SLA026	12/15/2011 15:30	David S Schrum	1
06946	Barium	SW-846 6010B	1	113495708001	12/19/2011 13:59	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113495708001	12/19/2011 13:59	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113495708001	12/19/2011 13:59	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113495708001	12/19/2011 13:59	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113495708001	12/19/2011 13:59	Eric L Eby	1
06966	Silver	SW-846 6010B	1	113495708001	12/19/2011 13:59	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113491026001A	12/21/2011 11:48	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113495711001	12/16/2011 06:50	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113495708001	12/15/2011 21:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113491026001	12/15/2011 21:27	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113495711001	12/15/2011 23:15	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	113508200058	12/16/2011 19:06	Scott W Freisher	1

DHR08 0075

Lancaster Laboratories

Sample Description: S11-SS05-0002-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499050
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:50 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

50002 SDG#: DHR08-15

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	SW-846 8260B		ug/kg		ug/kg	
10949	Acetone	67-64-1	91		7	0.81
10949	Benzene	71-43-2	0.5	U	0.5	0.81
10949	Bromobenzene	108-86-1	1	U	1	0.81
10949	Bromochloromethane	74-97-5	1	U	1	0.81
10949	Bromodichloromethane	75-27-4	1	U	1	0.81
10949	Bromoform	75-25-2	1	U	1	0.81
10949	Bromomethane	74-83-9	2	U	2	0.81
10949	2-Butanone	78-93-3	9	J	4	0.81
10949	n-Butylbenzene	104-51-8	1	U	1	0.81
10949	sec-Butylbenzene	135-98-8	1	U	1	0.81
10949	tert-Butylbenzene	98-06-6	1	U	1	0.81
10949	Carbon Disulfide	75-15-0	1	U	1	0.81
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.81
10949	Chlorobenzene	108-90-7	1	U	1	0.81
10949	Chloroethane	75-00-3	2	U	2	0.81
10949	Chloroform	67-66-3	1	U	1	0.81
10949	Chloromethane	74-87-3	2	U	2	0.81
10949	2-Chlorotoluene	95-49-8	1	U	1	0.81
10949	4-Chlorotoluene	106-43-4	1	U	1	0.81
10949	Cyclohexane	110-82-7	1	U	1	0.81
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.81
10949	Dibromochloromethane	124-48-1	1	U	1	0.81
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.81
10949	Dibromomethane	74-95-3	1	U	1	0.81
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.81
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.81
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.81
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.81
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.81
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.81
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.81
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.81
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.81
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.81
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.81
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.81
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.81
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.81
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.81
10949	Ethylbenzene	100-41-4	1	U	1	0.81
10949	Freon 113	76-13-1	2	U	2	0.81
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.81
10949	2-Hexanone	591-78-6	3	U	3	0.81
10949	Isopropylbenzene	98-82-8	1	U	1	0.81
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.81
10949	Methyl Acetate	79-20-9	2	U	2	0.81
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.81
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.81
10949	Methylcyclohexane	108-87-2	1	U	1	0.81
10949	Methylene Chloride	75-09-2	2	U	2	0.81
10949	Naphthalene	91-20-3	1	U	1	0.81

Lancaster Laboratories

Sample Description: S11-SS05-0002-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499050
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:50 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

50002 SDG#: DHR08-15

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.81
10949	Styrene	100-42-5	1	U	1	0.81
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.81
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.81
10949	Tetrachloroethene	127-18-4	17		1	0.81
10949	Toluene	108-88-3	1	U	1	0.81
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.81
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.81
10949	1,1,1-Trichloroethane	71-55-6	2	J	1	0.81
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.81
10949	Trichloroethene	79-01-6	1	U	1	0.81
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.81
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.81
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.81
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.81
10949	Vinyl Acetate	108-05-4	2	U	2	0.81
10949	Vinyl Chloride	75-01-4	1	U	1	0.81
10949	m+p-Xylene	179601-23-1	1	U	1	0.81
10949	o-Xylene	95-47-6	1	U	1	0.81
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	20	U	20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	80	U	80	1
10727	Di-n-butylphthalate	84-74-2	80	U	80	1
10727	Carbazole	86-74-8	20	U	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	8	U	8	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	20	U	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1
10727	Diethylphthalate	84-66-2	80	U	80	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	80	U	80	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1

DHR08 8877

Lancaster Laboratories

Sample Description: S11-SS05-0002-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499050
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:50 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

50002 SDG#: DHR08-15

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	400	U	400	1
10727	2,4-Dinitrotoluene	121-14-2	80	U	80	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	80	U	80	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	40	U	40	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	80	U	80	1
10727	4-Nitroaniline	100-01-6	80	U	80	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	80	U	80	1
10727	Pentachlorophenol	87-86-5	40	U	40	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	20	U	20	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	154		0.0215	1
06949	Cadmium	7440-43-9	0.834		0.0239	1
06951	Chromium	7440-47-3	22.3		0.167	1
06955	Lead	7439-92-1	15.3		0.263	1
06936	Selenium	7782-49-2	0.813	U	0.813	1
06966	Silver	7440-22-4	0.0993	U	0.0993	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	11.8		0.0947	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0095	J	0.0083	1

DHR08 0015

Lancaster Laboratories

Sample Description: S11-SS05-0002-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499050
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:50 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

50002 SDG#: DHR08-15

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	16.4	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113541AA	12/20/2011 22:02	Emily R Styer	0.81
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134826436	12/14/2011 14:07	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134826436	12/14/2011 14:08	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134826436	12/14/2011 14:07	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11349SLA026	12/16/2011 12:26	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11349SLA026	12/15/2011 15:30	David S Schrum	1
06946	Barium	SW-846 6010B	1	113495708001	12/19/2011 14:10	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113495708001	12/19/2011 14:10	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113495708001	12/19/2011 14:10	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113495708001	12/19/2011 14:10	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113495708001	12/19/2011 14:10	Eric L Eby	1
06966	Silver	SW-846 6010B	1	113495708001	12/19/2011 14:10	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113491026001A	12/21/2011 11:49	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113495711001	12/16/2011 06:52	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113495708001	12/15/2011 21:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113491026001	12/15/2011 21:27	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113495711001	12/15/2011 23:15	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	113508200058	12/16/2011 19:06	Scott W Freisher	1

DHR08 0079

Lancaster Laboratories

Sample Description: S11-SS05-0305-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499051
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

50305 SDG#: DHR08-16

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg		ug/kg	
10949	Acetone	67-64-1	35		8	0.87
10949	Benzene	71-43-2	0.5	U	0.5	0.87
10949	Bromobenzene	108-86-1	1	U	1	0.87
10949	Bromochloromethane	74-97-5	1	U	1	0.87
10949	Bromodichloromethane	75-27-4	1	U	1	0.87
10949	Bromoform	75-25-2	1	U	1	0.87
10949	Bromomethane	74-83-9	2	U	2	0.87
10949	2-Butanone	78-93-3	5	J	4	0.87
10949	n-Butylbenzene	104-51-8	1	U	1	0.87
10949	sec-Butylbenzene	135-98-8	1	U	1	0.87
10949	tert-Butylbenzene	98-06-6	1	U	1	0.87
10949	Carbon Disulfide	75-15-0	1	J	1	0.87
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.87
10949	Chlorobenzene	108-90-7	1	U	1	0.87
10949	Chloroethane	75-00-3	2	U	2	0.87
10949	Chloroform	67-66-3	1	U	1	0.87
10949	Chloromethane	74-87-3	2	U	2	0.87
10949	2-Chlorotoluene	95-49-8	1	U	1	0.87
10949	4-Chlorotoluene	106-43-4	1	U	1	0.87
10949	Cyclohexane	110-82-7	1	U	1	0.87
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.87
10949	Dibromochloromethane	124-48-1	1	U	1	0.87
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.87
10949	Dibromomethane	74-95-3	1	U	1	0.87
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.87
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.87
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.87
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.87
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.87
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.87
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.87
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.87
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.87
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.87
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.87
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.87
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.87
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.87
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.87
10949	Ethylbenzene	100-41-4	1	U	1	0.87
10949	Freon 113	76-13-1	2	U	2	0.87
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.87
10949	2-Hexanone	591-78-6	3	U	3	0.87
10949	Isopropylbenzene	98-82-8	1	U	1	0.87
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.87
10949	Methyl Acetate	79-20-9	2	U	2	0.87
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.87
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.87
10949	Methylcyclohexane	108-87-2	1	U	1	0.87
10949	Methylene Chloride	75-09-2	2	U	2	0.87
10949	Naphthalene	91-20-3	1	U	1	0.87

Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681

Lancaster Laboratories

Sample Description: S11-SS05-0305-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499051
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

50305 SDG#: DHR08-16

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg		ug/kg	
10949	n-Propylbenzene	103-65-1	1	U	1	0.87
10949	Styrene	100-42-5	1	U	1	0.87
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.87
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.87
10949	Tetrachloroethene	127-18-4	1	U	1	0.87
10949	Toluene	108-88-3	1	U	1	0.87
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.87
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.87
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.87
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.87
10949	Trichloroethene	79-01-6	1	U	1	0.87
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.87
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.87
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.87
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.87
10949	Vinyl Acetate	108-05-4	2	U	2	0.87
10949	Vinyl Chloride	75-01-4	1	U	1	0.87
10949	m+p-Xylene	179601-23-1	1	U	1	0.87
10949	o-Xylene	95-47-6	1	U	1	0.87
GC/MS Semivolatiles	**SW-846 8270C**		ug/kg		ug/kg	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	210	U	210	1
10727	1,1'-Biphenyl	92-52-4	21	U	21	1
10727	4-Bromophenyl-phenylether	101-55-3	21	U	21	1
10727	Butylbenzylphthalate	85-68-7	82	U	82	1
10727	Di-n-butylphthalate	84-74-2	82	U	82	1
10727	Carbazole	86-74-8	21	U	21	1
10727	4-Chloro-3-methylphenol	59-50-7	21	U	21	1
10727	4-Chloroaniline	106-47-8	21	U	21	1
10727	bis(2-Chloroethoxy)methane	111-91-1	21	U	21	1
10727	bis(2-Chloroethyl)ether	111-44-4	21	U	21	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	21	U	21	1
10727	4-Chlorophenyl-phenylether	7005-72-3	21	U	21	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	21	U	21	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	21	U	21	1
10727	Diethylphthalate	84-66-2	82	U	82	1
10727	2,4-Dimethylphenol	105-67-9	21	U	21	1
10727	Dimethylphthalate	131-11-3	82	U	82	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	210	U	210	1

DHR08 8681

Lancaster Laboratories

Sample Description: S11-SS05-0305-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499051
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

50305 SDG#: DHR08-16

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	410	U	410	1
10727	2,4-Dinitrotoluene	121-14-2	82	U	82	1
10727	2,6-Dinitrotoluene	606-20-2	21	U	21	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	82	U	82	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	210	U	210	1
10727	Hexachloroethane	67-72-1	41	U	41	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	21	U	21	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	21	U	21	1
10727	4-Methylphenol	106-44-5	21	U	21	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	21	U	21	1
10727	3-Nitroaniline	99-09-2	82	U	82	1
10727	4-Nitroaniline	100-01-6	82	U	82	1
10727	Nitrobenzene	98-95-3	21	U	21	1
10727	2-Nitrophenol	88-75-5	21	U	21	1
10727	4-Nitrophenol	100-02-7	210	U	210	1
10727	N-Nitroso-di-n-propylamine	621-64-7	21	U	21	1
10727	N-Nitrosodiphenylamine	86-30-6	21	U	21	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	82	U	82	1
10727	Pentachlorophenol	87-86-5	41	U	41	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	21	U	21	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	21	U	21	1
10727	2,4,6-Trichlorophenol	88-06-2	21	U	21	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	91.0		0.0218	1
06949	Cadmium	7440-43-9	0.909		0.0242	1
06951	Chromium	7440-47-3	19.3		0.169	1
06955	Lead	7439-92-1	14.5		0.266	1
06936	Selenium	7782-49-2	0.823	U	0.823	1
06966	Silver	7440-22-4	0.100	U	0.100	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	14.3		0.0988	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0224	J	0.0084	1

DHR08 08832

Lancaster Laboratories

Sample Description: S11-SS05-0305-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499051
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 10:55 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

50305 SDG#: DHR08-16

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	19.0	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113561AA	12/22/2011 16:27	Chelsea B Eastep	0.87
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134826436	12/14/2011 14:09	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134826436	12/14/2011 14:09	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134826436	12/14/2011 14:09	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11349SLA026	12/16/2011 12:51	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11349SLA026	12/15/2011 15:30	David S Schrum	1
06946	Barium	SW-846 6010B	1	113495708001	12/19/2011 14:13	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113495708001	12/19/2011 14:13	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113495708001	12/19/2011 14:13	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113495708001	12/19/2011 14:13	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113495708001	12/20/2011 11:39	Joanne M Gates	1
06966	Silver	SW-846 6010B	1	113495708001	12/19/2011 14:13	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113491026001A	12/21/2011 11:51	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113495711001	12/16/2011 06:56	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113495708001	12/15/2011 21:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113491026001	12/15/2011 21:27	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113495711001	12/15/2011 23:15	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11350820005B	12/16/2011 19:06	Scott W Freisher	1

DHR08 8803

Lancaster Laboratories

Sample Description: S11-SS05-0810-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499052
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 11:00 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

50810 SDG#: DHR08-17*

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	SW-846 8260B		ug/kg		ug/kg	
10949	Acetone	67-64-1	34		8	0.9
10949	Benzene	71-43-2	0.6	U	0.6	0.9
10949	Bromobenzene	108-86-1	1	U	1	0.9
10949	Bromochloromethane	74-97-5	1	U	1	0.9
10949	Bromodichloromethane	75-27-4	1	U	1	0.9
10949	Bromoform	75-25-2	1	U	1	0.9
10949	Bromomethane	74-83-9	2	U	2	0.9
10949	2-Butanone	78-93-3	5	J	5	0.9
10949	n-Butylbenzene	104-51-8	1	U	1	0.9
10949	sec-Butylbenzene	135-98-8	1	U	1	0.9
10949	tert-Butylbenzene	98-06-6	1	U	1	0.9
10949	Carbon Disulfide	75-15-0	1	U	1	0.9
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.9
10949	Chlorobenzene	108-90-7	1	U	1	0.9
10949	Chloroethane	75-00-3	2	U	2	0.9
10949	Chloroform	67-66-3	1	U	1	0.9
10949	Chloromethane	74-87-3	2	U	2	0.9
10949	2-Chlorotoluene	95-49-8	1	U	1	0.9
10949	4-Chlorotoluene	106-43-4	1	U	1	0.9
10949	Cyclohexane	110-82-7	1	U	1	0.9
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.9
10949	Dibromochloromethane	124-48-1	1	U	1	0.9
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.9
10949	Dibromomethane	74-95-3	1	U	1	0.9
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.9
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.9
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.9
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.9
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.9
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.9
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.9
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.9
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.9
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.9
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.9
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.9
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.9
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.9
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.9
10949	Ethylbenzene	100-41-4	1	U	1	0.9
10949	Freon 113	76-13-1	2	U	2	0.9
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.9
10949	2-Hexanone	591-78-6	3	U	3	0.9
10949	Isopropylbenzene	98-82-8	1	U	1	0.9
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.9
10949	Methyl Acetate	79-20-9	2	U	2	0.9
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.6	U	0.6	0.9
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.9
10949	Methylcyclohexane	108-87-2	1	U	1	0.9
10949	Methylene Chloride	75-09-2	2	U	2	0.9
10949	Naphthalene	91-20-3	1	U	1	0.9

Lancaster Laboratories

Sample Description: S11-SS05-0810-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499052
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 11:00 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

50810 SDG#: DHR08-17*

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.9
10949	Styrene	100-42-5	1	U	1	0.9
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.9
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.9
10949	Tetrachloroethene	127-18-4	1	U	1	0.9
10949	Toluene	108-88-3	1	U	1	0.9
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.9
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.9
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.9
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.9
10949	Trichloroethene	79-01-6	1	U	1	0.9
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.9
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.9
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.9
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.9
10949	Vinyl Acetate	108-05-4	2	U	2	0.9
10949	Vinyl Chloride	75-01-4	1	U	1	0.9
10949	m+p-Xylene	179601-23-1	1	U	1	0.9
10949	o-Xylene	95-47-6	1	U	1	0.9
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	4	U	4	1
10727	Benzo(a)pyrene	50-32-8	4	U	4	1
10727	Benzo(b)fluoranthene	205-99-2	4	U	4	1
10727	Benzo(g,h,i)perylene	191-24-2	4	U	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	210	U	210	1
10727	1,1'-Biphenyl	92-52-4	21	U	21	1
10727	4-Bromophenyl-phenylether	101-55-3	21	U	21	1
10727	Butylbenzylphthalate	85-68-7	84	U	84	1
10727	Di-n-butylphthalate	84-74-2	84	U	84	1
10727	Carbazole	86-74-8	21	U	21	1
10727	4-Chloro-3-methylphenol	59-50-7	21	U	21	1
10727	4-Chloroaniline	106-47-8	21	U	21	1
10727	bis(2-Chloroethoxy)methane	111-91-1	21	U	21	1
10727	bis(2-Chloroethyl)ether	111-44-4	21	U	21	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	21	U	21	1
10727	4-Chlorophenyl-phenylether	7005-72-3	21	U	21	1
10727	Chrysene	218-01-9	4	U	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	21	U	21	1
10727	3,3'-Dichlorobenzidine	91-94-1	130	U	130	1
10727	2,4-Dichlorophenol	120-83-2	21	U	21	1
10727	Diethylphthalate	84-66-2	84	U	84	1
10727	2,4-Dimethylphenol	105-67-9	21	U	21	1
10727	Dimethylphthalate	131-11-3	84	U	84	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	210	U	210	1

DHR08 0005

Lancaster Laboratories

Sample Description: S11-SS05-0810-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499052
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 11:00 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

50810 SDG#: DHR08-17*

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	420	U	420	1
10727	2,4-Dinitrotoluene	121-14-2	84	U	84	1
10727	2,6-Dinitrotoluene	606-20-2	21	U	21	1
10727	1,4-Dioxane	123-91-1	130	U	130	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	84	U	84	1
10727	Fluoranthene	206-44-0	4	U	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	210	U	210	1
10727	Hexachloroethane	67-72-1	42	U	42	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	4	U	4	1
10727	Isophorone	78-59-1	21	U	21	1
10727	2-Methylnaphthalene	91-57-6	4	U	4	1
10727	2-Methylphenol	95-48-7	21	U	21	1
10727	4-Methylphenol	106-44-5	21	U	21	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	21	U	21	1
10727	3-Nitroaniline	99-09-2	84	U	84	1
10727	4-Nitroaniline	100-01-6	84	U	84	1
10727	Nitrobenzene	98-95-3	21	U	21	1
10727	2-Nitrophenol	88-75-5	21	U	21	1
10727	4-Nitrophenol	100-02-7	210	U	210	1
10727	N-Nitroso-di-n-propylamine	621-64-7	21	U	21	1
10727	N-Nitrosodiphenylamine	86-30-6	21	U	21	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	84	U	84	1
10727	Pentachlorophenol	87-86-5	42	U	42	1
10727	Phenanthrene	85-01-8	4	U	4	1
10727	Phenol	108-95-2	21	U	21	1
10727	Pyrene	129-00-0	4	U	4	1
10727	2,4,5-Trichlorophenol	95-95-4	21	U	21	1
10727	2,4,6-Trichlorophenol	88-06-2	21	U	21	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	99.6		0.0227	1
06949	Cadmium	7440-43-9	0.885		0.0252	1
06951	Chromium	7440-47-3	16.9		0.176	1
06955	Lead	7439-92-1	13.3		0.277	1
06936	Selenium	7782-49-2	0.856	U	0.856	1
06966	Silver	7440-22-4	0.105	U	0.105	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	14.6		0.0988	2
	SW-846 7471A		**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0217	J	0.0084	1

DHR08 0886

Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681

Lancaster Laboratories

Sample Description: S11-SS05-0810-121311 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6499052
LLI Group # 1280964
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/13/2011 11:00 by OO

Submitted: 12/14/2011 09:20
Reported: 12/27/2011 13:47

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

50810 SDG#: DHR08-17*

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	20.6	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113561AA	12/22/2011 16:49	Chelsea B Eastep	0.9
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201134826436	12/14/2011 14:11	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201134826436	12/14/2011 14:11	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201134826436	12/14/2011 14:11	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11349SLA026	12/16/2011 13:17	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11349SLA026	12/15/2011 15:30	David S Schrum	1
06946	Barium	SW-846 6010B	1	113495708001	12/19/2011 14:17	Eric L Eby	1
06949	Cadmium	SW-846 6010B	1	113495708001	12/19/2011 14:17	Eric L Eby	1
06951	Chromium	SW-846 6010B	1	113495708001	12/19/2011 14:17	Eric L Eby	1
06955	Lead	SW-846 6010B	1	113495708001	12/19/2011 14:17	Eric L Eby	1
06936	Selenium	SW-846 6010B	1	113495708001	12/19/2011 14:17	Eric L Eby	1
06966	Silver	SW-846 6010B	1	113495708001	12/19/2011 14:17	Eric L Eby	1
06125	Arsenic	SW-846 6020	1	113491026001A	12/21/2011 11:52	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	113495711001	12/16/2011 06:57	Damary Valentin	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	113495708001	12/15/2011 21:25	Annamaria Stipkovits	1
11026	SW SW846 ICP-MS Digest	SW-846 3050B	1	113491026001	12/15/2011 21:27	Annamaria Stipkovits	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	113495711001	12/15/2011 23:15	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	11350820005B	12/16/2011 19:06	Scott W Freisher	1

DHR08 6867

Volatiles by GC/MS Data

DHR88 0888

Case Narrative
Conformance/Nonconformance
Summary

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CLIENT: CH2M Hill, Inc.
SDG: DHR08

GC/MS Volatiles

Fraction: Volatiles by GC/MS

8260 Ext. Soil Master

Sample #	Client ID	Matrix Liquid	Matrix Solid	DF	Comments
6499034	S11-SS04-0002-121311		X	0.89	
6499035	S11-SS04-0305-121311		X	0.83	Unspiked
6499036	S11-SS04-0305-121311MS		X	0.81; 0.87	Matrix Spike
6499037	S11-SS04-0305-121311MSD		X	0.83; 0.87	Matrix Spike Duplicate
6499039	S11-SS04-0810-121311		X	0.89	
6499040	S11-SS03-0002-121311		X	0.81	
6499041	S11-SS03-0305-121311		X	0.84	
6499042	S11-SS03-0810-121311		X	0.95	
6499043	S11-SS02-0002-121311		X	0.78	
6499044	HGR-121311-FD01		X	0.86	Field Duplicate Sample
6499045	S11-SS02-0305-121311		X	0.86	
6499046	S11-SS02-0810-121311		X	0.87	
6499047	S11-SS01-0002-121311		X	0.91	
6499048	S11-SS01-0308-121311		X	0.88	
6499049	S11-SS01-0810-121311		X	0.88	
6499050	S11-SS05-0002-121311		X	0.81	
6499051	S11-SS05-0305-121311		X	0.87	
6499052	S11-SS05-0810-121311		X	0.9	

See QC Reference List for Associated Batch QC Samples

SAMPLE RECEIPT:

The weight for several samples was found to be outside the weight requirement when these samples were re-weighed at the laboratory. Please see the VOA Prep Summary sheets in the Preparations Log section for more information.

HOLDING TIME:

All holding times were met.

PREPARATION/EXTRACTION/DIGESTION:

No problems were encountered.

DHR08 0050

CLIENT: CH2M Hill, Inc.
SDG: DHR08

GC/MS Volatiles

Fraction: Volatiles by GC/MS

CALIBRATION/STANDARDIZATION:

All criteria were met.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

All QC is within specification.

SAMPLE ANALYSIS:

No problems were encountered with the analysis of the samples.

DATA INTERPRETATION:

No further interpretation is necessary for the data submitted.

Abbreviation Key

UNSPK = Unspiked (for MS/MSD)	LOQ = Limit of Quantitation
MS = Matrix Spike	MDL = Method Detection Limit
MSD = Matrix Spike Duplicate	ND = Not Detected
BKG = Background (for Duplicate)	J = Estimated Value
D = Duplicate (DUP)	E= out of calibration range
LCS = Lab Control Sample	RE = Repreparation/Reanalysis
LCSD = Lab Control Sample Duplicate	* = Out of Specification

Narrative Reviewed and Approved 1/5/12 (Date) by Judi Brown

Judi Brown
Specialist

DHR08. 0091

Quality Control and Calibration Summary Forms

DHR68 6892

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Quality Control Reference List
GC/MS Volatiles

CLIENT: CH2M Hill, Inc.
SDG: DHR08

Fraction: Volatiles by GC/MS

Analysis	Batch Number	Sample Number	Analysis Date
8260 Ext. Soil Master	A113541AA	VBLKA77	12/20/2011 12:02:00
		LCS1A77	12/20/2011 13:16:00
		LCSA77	12/20/2011 12:33:00
		6499034	12/20/2011 15:36:00
		6499035 UNSPK	12/20/2011 15:59:00
		6499036 MS	12/20/2011 16:22:00
		6499036 MS	12/20/2011 17:07:00
		6499037 MSD	12/20/2011 16:44:00
		6499037 MSD	12/20/2011 17:30:00
		6499039	12/20/2011 17:53:00
		6499040	12/20/2011 18:15:00
		6499041	12/20/2011 18:38:00
		6499042	12/20/2011 19:01:00
		6499043	12/20/2011 19:24:00
		6499044	12/20/2011 19:47:00
		6499045	12/20/2011 20:09:00
		6499046	12/20/2011 20:32:00
		6499047	12/20/2011 20:55:00
		6499048	12/20/2011 21:17:00
		6499049	12/20/2011 21:40:00
		6499050	12/20/2011 22:02:00
8260 Ext. Soil Master	A113561AA	VBLKA80	12/22/2011 11:26:00
		LCS1A80	12/22/2011 12:16:00
		LCSA80	12/22/2011 11:50:00
		LCD1A80	12/22/2011 12:39:00
		6499051	12/22/2011 16:27:00
		6499052	12/22/2011 16:49:00

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LOQ/MDL Summary
GC/MS Volatiles

SDG: DHR08

Fraction: Volatiles by GC/MS

10949: 8260 Ext. Soil Master Analyte Name	Default MDL	Default LOQ	Units
Dichlorodifluoromethane	2	5	ug/kg
Chloromethane	2	5	ug/kg
Vinyl Chloride	1	5	ug/kg
Bromomethane	2	5	ug/kg
Chloroethane	2	5	ug/kg
Trichlorofluoromethane	2	5	ug/kg
1,1-Dichloroethene	1	5	ug/kg
Freon 113	2	10	ug/kg
Acetone	7	20	ug/kg
Carbon Disulfide	1	5	ug/kg
Methyl Acetate	2	5	ug/kg
Methylene Chloride	2	5	ug/kg
trans-1,2-Dichloroethene	1	5	ug/kg
Methyl Tertiary Butyl Ether	0.5	5	ug/kg
1,1-Dichloroethane	1	5	ug/kg
Vinyl Acetate	2	10	ug/kg
2-Butanone	4	10	ug/kg
cis-1,2-Dichloroethene	1	5	ug/kg
2,2-Dichloropropane	1	5	ug/kg
Bromochloromethane	1	5	ug/kg
Chloroform	1	5	ug/kg
1,1,1-Trichloroethane	1	5	ug/kg
Cyclohexane	1	5	ug/kg
1,1-Dichloropropene	1	5	ug/kg
Carbon Tetrachloride	1	5	ug/kg
Benzene	0.5	5	ug/kg
1,2-Dichloroethane	1	5	ug/kg
Trichloroethene	1	5	ug/kg
Methylcyclohexane	1	5	ug/kg
1,2-Dichloropropane	1	5	ug/kg
Dibromomethane	1	5	ug/kg
Bromodichloromethane	1	5	ug/kg
cis-1,3-Dichloropropene	1	5	ug/kg
4-Methyl-2-pentanone	3	10	ug/kg
Toluene	1	5	ug/kg
trans-1,3-Dichloropropene	1	5	ug/kg
1,1,2-Trichloroethane	1	5	ug/kg
Tetrachloroethene	1	5	ug/kg
1,3-Dichloropropane	1	5	ug/kg
2-Hexanone	3	10	ug/kg
Dibromochloromethane	1	5	ug/kg
1,2-Dibromoethane	1	5	ug/kg
Chlorobenzene	1	5	ug/kg
1,1,1,2-Tetrachloroethane	1	5	ug/kg
Ethylbenzene	1	5	ug/kg
m+p-Xylene	1	5	ug/kg
o-Xylene	1	5	ug/kg

DHR08 0894

Fraction: Volatiles by GC/MS

10949: 8260 Ext. Soil Master Analyte Name	Default MDL	Default LOQ	Units
Styrene	1	5	ug/kg
Bromoform	1	5	ug/kg
Isopropylbenzene	1	5	ug/kg
1,1,2,2-Tetrachloroethane	1	5	ug/kg
Bromobenzene	1	5	ug/kg
1,2,3-Trichloropropane	1	5	ug/kg
n-Propylbenzene	1	5	ug/kg
2-Chlorotoluene	1	5	ug/kg
1,3,5-Trimethylbenzene	1	5	ug/kg
4-Chlorotoluene	1	5	ug/kg
tert-Butylbenzene	1	5	ug/kg
1,2,4-Trimethylbenzene	1	5	ug/kg
sec-Butylbenzene	1	5	ug/kg
1,3-Dichlorobenzene	1	5	ug/kg
p-Isopropyltoluene	1	5	ug/kg
1,4-Dichlorobenzene	1	5	ug/kg
n-Butylbenzene	1	5	ug/kg
1,2-Dichlorobenzene	1	5	ug/kg
1,2-Dibromo-3-chloropropane	2	5	ug/kg
1,2,4-Trichlorobenzene	1	5	ug/kg
Hexachlorobutadiene	2	5	ug/kg
Naphthalene	1	5	ug/kg
1,2,3-Trichlorobenzene	1	5	ug/kg

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Quality Control Summary
Method Blank
GC/MS Volatiles
SDG: DHR08
Matrix: SOLID

Fraction: Volatiles by GC/MS

A113541AA / VBLKA77 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Dichlorodifluoromethane	12/20/11	N.D.	ug/kg	2	5
Chloromethane	12/20/11	N.D.	ug/kg	2	5
Vinyl Chloride	12/20/11	N.D.	ug/kg	1	5
Bromomethane	12/20/11	N.D.	ug/kg	2	5
Chloroethane	12/20/11	N.D.	ug/kg	2	5
Trichlorofluoromethane	12/20/11	N.D.	ug/kg	2	5
1,1-Dichloroethene	12/20/11	N.D.	ug/kg	1	5
Acetone	12/20/11	N.D.	ug/kg	7	20
Carbon Disulfide	12/20/11	N.D.	ug/kg	1	5
Freon 113	12/20/11	N.D.	ug/kg	2	10
Methyl Acetate	12/20/11	N.D.	ug/kg	2	5
Benzene	12/20/11	N.D.	ug/kg	0.5	5
Bromochloromethane	12/20/11	N.D.	ug/kg	1	5
Bromodichloromethane	12/20/11	N.D.	ug/kg	1	5
2-Butanone	12/20/11	N.D.	ug/kg	4	10
Carbon Tetrachloride	12/20/11	N.D.	ug/kg	1	5
Chloroform	12/20/11	N.D.	ug/kg	1	5
Cyclohexane	12/20/11	N.D.	ug/kg	1	5
Dibromomethane	12/20/11	N.D.	ug/kg	1	5
1,1-Dichloroethane	12/20/11	N.D.	ug/kg	1	5
1,2-Dichloroethane	12/20/11	N.D.	ug/kg	1	5
cis-1,2-Dichloroethene	12/20/11	N.D.	ug/kg	1	5
trans-1,2-Dichloroethene	12/20/11	N.D.	ug/kg	1	5
1,2-Dichloropropane	12/20/11	N.D.	ug/kg	1	5
2,2-Dichloropropane	12/20/11	N.D.	ug/kg	1	5
1,1-Dichloropropene	12/20/11	N.D.	ug/kg	1	5
cis-1,3-Dichloropropene	12/20/11	N.D.	ug/kg	1	5
Methyl Tertiary Butyl Ether	12/20/11	N.D.	ug/kg	0.5	5
4-Methyl-2-pentanone	12/20/11	N.D.	ug/kg	3	10
Methylcyclohexane	12/20/11	N.D.	ug/kg	1	5
Methylene Chloride	12/20/11	N.D.	ug/kg	2	5
Toluene	12/20/11	N.D.	ug/kg	1	5
1,1,1-Trichloroethane	12/20/11	N.D.	ug/kg	1	5
Trichloroethene	12/20/11	N.D.	ug/kg	1	5
Vinyl Acetate	12/20/11	N.D.	ug/kg	2	10
Bromobenzene	12/20/11	N.D.	ug/kg	1	5
Bromoform	12/20/11	N.D.	ug/kg	1	5
n-Butylbenzene	12/20/11	N.D.	ug/kg	1	5
sec-Butylbenzene	12/20/11	N.D.	ug/kg	1	5
tert-Butylbenzene	12/20/11	N.D.	ug/kg	1	5
Chlorobenzene	12/20/11	N.D.	ug/kg	1	5
2-Chlorotoluene	12/20/11	N.D.	ug/kg	1	5
4-Chlorotoluene	12/20/11	N.D.	ug/kg	1	5
1,2-Dibromo-3-chloropropane	12/20/11	N.D.	ug/kg	2	5
Dibromochloromethane	12/20/11	N.D.	ug/kg	1	[illegible]

Fraction: Volatiles by GC/MS

A113541AA / VBLKA77 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
1,2-Dibromoethane	12/20/11	N.D.	ug/kg	1	5
1,2-Dichlorobenzene	12/20/11	N.D.	ug/kg	1	5
1,3-Dichlorobenzene	12/20/11	N.D.	ug/kg	1	5
1,4-Dichlorobenzene	12/20/11	N.D.	ug/kg	1	5
1,3-Dichloropropane	12/20/11	N.D.	ug/kg	1	5
trans-1,3-Dichloropropene	12/20/11	N.D.	ug/kg	1	5
Ethylbenzene	12/20/11	N.D.	ug/kg	1	5
2-Hexanone	12/20/11	N.D.	ug/kg	3	10
Isopropylbenzene	12/20/11	N.D.	ug/kg	1	5
p-Isopropyltoluene	12/20/11	N.D.	ug/kg	1	5
n-Propylbenzene	12/20/11	N.D.	ug/kg	1	5
Styrene	12/20/11	N.D.	ug/kg	1	5
1,1,1,2-Tetrachloroethane	12/20/11	N.D.	ug/kg	1	5
1,1,2,2-Tetrachloroethane	12/20/11	N.D.	ug/kg	1	5
Tetrachloroethene	12/20/11	N.D.	ug/kg	1	5
1,1,2-Trichloroethane	12/20/11	N.D.	ug/kg	1	5
1,2,3-Trichloropropane	12/20/11	N.D.	ug/kg	1	5
1,2,4-Trimethylbenzene	12/20/11	N.D.	ug/kg	1	5
1,3,5-Trimethylbenzene	12/20/11	N.D.	ug/kg	1	5
m+p-Xylene	12/20/11	N.D.	ug/kg	1	5
o-Xylene	12/20/11	N.D.	ug/kg	1	5
Hexachlorobutadiene	12/20/11	N.D.	ug/kg	2	5
Naphthalene	12/20/11	N.D.	ug/kg	1	5
1,2,3-Trichlorobenzene	12/20/11	N.D.	ug/kg	1	5
1,2,4-Trichlorobenzene	12/20/11	N.D.	ug/kg	1	5

A113561AA / VBLKA80 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Dichlorodifluoromethane	12/22/11	N.D.	ug/kg	2	5
Chloromethane	12/22/11	N.D.	ug/kg	2	5
Vinyl Chloride	12/22/11	N.D.	ug/kg	1	5
Bromomethane	12/22/11	N.D.	ug/kg	2	5
Chloroethane	12/22/11	N.D.	ug/kg	2	5
Trichlorofluoromethane	12/22/11	N.D.	ug/kg	2	5
1,1-Dichloroethene	12/22/11	N.D.	ug/kg	1	5
Acetone	12/22/11	N.D.	ug/kg	7	20
Carbon Disulfide	12/22/11	N.D.	ug/kg	1	5
Freon 113	12/22/11	N.D.	ug/kg	2	10
Methyl Acetate	12/22/11	N.D.	ug/kg	2	5
Benzene	12/22/11	N.D.	ug/kg	0.5	5
Bromochloromethane	12/22/11	N.D.	ug/kg	1	5
Bromodichloromethane	12/22/11	N.D.	ug/kg	1	5
2-Butanone	12/22/11	N.D.	ug/kg	4	10
Carbon Tetrachloride	12/22/11	N.D.	ug/kg	1	5
Chloroform	12/22/11	N.D.	ug/kg	1	[redacted]

Fraction: Volatiles by GC/MS

A113561AA / VBLKA80 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Cyclohexane	12/22/11	N.D.	ug/kg	1	5
Dibromomethane	12/22/11	N.D.	ug/kg	1	5
1,1-Dichloroethane	12/22/11	N.D.	ug/kg	1	5
1,2-Dichloroethane	12/22/11	N.D.	ug/kg	1	5
cis-1,2-Dichloroethene	12/22/11	N.D.	ug/kg	1	5
trans-1,2-Dichloroethene	12/22/11	N.D.	ug/kg	1	5
1,2-Dichloropropane	12/22/11	N.D.	ug/kg	1	5
2,2-Dichloropropane	12/22/11	N.D.	ug/kg	1	5
1,1-Dichloropropene	12/22/11	N.D.	ug/kg	1	5
cis-1,3-Dichloropropene	12/22/11	N.D.	ug/kg	1	5
Methyl Tertiary Butyl Ether	12/22/11	N.D.	ug/kg	0.5	5
4-Methyl-2-pentanone	12/22/11	N.D.	ug/kg	3	10
Methylcyclohexane	12/22/11	N.D.	ug/kg	1	5
Methylene Chloride	12/22/11	N.D.	ug/kg	2	5
Toluene	12/22/11	N.D.	ug/kg	1	5
1,1,1-Trichloroethane	12/22/11	N.D.	ug/kg	1	5
Trichloroethene	12/22/11	N.D.	ug/kg	1	5
Vinyl Acetate	12/22/11	N.D.	ug/kg	2	10
Bromobenzene	12/22/11	N.D.	ug/kg	1	5
Bromoform	12/22/11	N.D.	ug/kg	1	5
n-Butylbenzene	12/22/11	N.D.	ug/kg	1	5
sec-Butylbenzene	12/22/11	N.D.	ug/kg	1	5
tert-Butylbenzene	12/22/11	N.D.	ug/kg	1	5
Chlorobenzene	12/22/11	N.D.	ug/kg	1	5
2-Chlorotoluene	12/22/11	N.D.	ug/kg	1	5
4-Chlorotoluene	12/22/11	N.D.	ug/kg	1	5
1,2-Dibromo-3-chloropropane	12/22/11	N.D.	ug/kg	2	5
Dibromochloromethane	12/22/11	N.D.	ug/kg	1	5
1,2-Dibromoethane	12/22/11	N.D.	ug/kg	1	5
1,2-Dichlorobenzene	12/22/11	N.D.	ug/kg	1	5
1,3-Dichlorobenzene	12/22/11	N.D.	ug/kg	1	5
1,4-Dichlorobenzene	12/22/11	N.D.	ug/kg	1	5
1,3-Dichloropropane	12/22/11	N.D.	ug/kg	1	5
trans-1,3-Dichloropropene	12/22/11	N.D.	ug/kg	1	5
Ethylbenzene	12/22/11	N.D.	ug/kg	1	5
2-Hexanone	12/22/11	N.D.	ug/kg	3	10
Isopropylbenzene	12/22/11	N.D.	ug/kg	1	5
p-Isopropyltoluene	12/22/11	N.D.	ug/kg	1	5
n-Propylbenzene	12/22/11	N.D.	ug/kg	1	5
Styrene	12/22/11	N.D.	ug/kg	1	5
1,1,1,2-Tetrachloroethane	12/22/11	N.D.	ug/kg	1	5
1,1,2,2-Tetrachloroethane	12/22/11	N.D.	ug/kg	1	5
Tetrachloroethene	12/22/11	N.D.	ug/kg	1	5
1,1,2-Trichloroethane	12/22/11	N.D.	ug/kg	1	5
1,2,3-Trichloropropane	12/22/11	N.D.	ug/kg	1	5

Fraction: Volatiles by GC/MS

A113561AA / VBLKA80 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
1,2,4-Trimethylbenzene	12/22/11	N.D.	ug/kg	1	5
1,3,5-Trimethylbenzene	12/22/11	N.D.	ug/kg	1	5
m+p-Xylene	12/22/11	N.D.	ug/kg	1	5
o-Xylene	12/22/11	N.D.	ug/kg	1	5
Hexachlorobutadiene	12/22/11	N.D.	ug/kg	2	5
Naphthalene	12/22/11	N.D.	ug/kg	1	5
1,2,3-Trichlorobenzene	12/22/11	N.D.	ug/kg	1	5
1,2,4-Trichlorobenzene	12/22/11	N.D.	ug/kg	1	5

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Quality Control Summary
Surrogates
GC/MS Volatiles
SDG: DHR08
Matrix: SOLID

Fraction: Volatiles by GC/MS

A113541AA	Dibromofluoromethane		1,2-Dichloroethane-d4		Toluene-d8		4-Bromofluorobenzene	
	Spike Added	50 ug/kg	Spike Added	50 ug/kg	Spike Added	50 ug/kg	Spike Added	50 ug/kg
Sample	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits
VBLKA77	105	71 - 114	102	70 - 109	98	70 - 123	90	70 - 111
LCSA77	106	71 - 114	99	70 - 109	102	70 - 123	97	70 - 111
6499034	106	71 - 114	106	70 - 109	100	70 - 123	92	70 - 111
6499035	107	71 - 114	105	70 - 109	99	70 - 123	92	70 - 111
6499036 MS	106	71 - 114	103	70 - 109	101	70 - 123	94	70 - 111
6499037 MSD	104	71 - 114	101	70 - 109	102	70 - 123	94	70 - 111
6499039	105	71 - 114	106	70 - 109	100	70 - 123	92	70 - 111
6499040	106	71 - 114	103	70 - 109	100	70 - 123	90	70 - 111
6499041	106	71 - 114	101	70 - 109	100	70 - 123	91	70 - 111
6499042	106	71 - 114	100	70 - 109	100	70 - 123	91	70 - 111
6499043	103	71 - 114	98	70 - 109	100	70 - 123	91	70 - 111
6499044	106	71 - 114	108	70 - 109	100	70 - 123	92	70 - 111
6499045	104	71 - 114	102	70 - 109	100	70 - 123	91	70 - 111
6499046	107	71 - 114	104	70 - 109	98	70 - 123	91	70 - 111
6499047	105	71 - 114	102	70 - 109	100	70 - 123	90	70 - 111
6499048	106	71 - 114	101	70 - 109	99	70 - 123	91	70 - 111
6499049	107	71 - 114	102	70 - 109	99	70 - 123	92	70 - 111
6499050	108	71 - 114	101	70 - 109	106	70 - 123	83	70 - 111

A113561AA	Dibromofluoromethane		1,2-Dichloroethane-d4		Toluene-d8		4-Bromofluorobenzene	
	Spike Added	50 ug/kg	Spike Added	50 ug/kg	Spike Added	50 ug/kg	Spike Added	50 ug/kg
Sample	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits
VBLKA80	100	71 - 114	100	70 - 109	101	70 - 123	95	70 - 111
LCSA80	100	71 - 114	101	70 - 109	103	70 - 123	99	70 - 111
6499051	100	71 - 114	100	70 - 109	101	70 - 123	93	70 - 111
6499052	101	71 - 114	99	70 - 109	101	70 - 123	94	70 - 111

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Quality Control Summary
Matrix Spike/Matrix Spike Duplicate

SDG: DHR08
Matrix: SOLID

GC/MS Volatiles
Fraction: Volatiles by GC/MS

UNSPK: 6499035 MS: 6499036 MSD: 6499037 **Analyte**	Batch: **A113541AA** (Sample number(s): 6499034-6499037, 6499039-6499050)								
	Spike Added ug/kg	**Unspiked Conc ug/kg**	**MS Conc ug/kg**	**MSD Conc ug/kg**	**MS %Rec**	**MSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Dichlorodifluoromethane	17.3	N.D.	18.88	19.49	109	113	26-151	3	30
Chloromethane	17.3	N.D.	14.09	14.78	81	85	51-163	5	30
Vinyl Chloride	17.3	N.D.	15.49	15.98	90	92	50-154	3	30
Bromomethane	17.3	N.D.	18.29	18.59	106	107	42-168	2	30
Chloroethane	17.3	N.D.	17.31	17.87	100	103	39-152	3	30
Trichlorofluoromethane	17.3	N.D.	22.41	22.75	129	131	47-163	2	30
1,1-Dichloroethene	17.3	N.D.	18.14	17.	105	98	61-149	6	30
Acetone	129.76	11.92	181.42	177.98	131	128	31-195	2	30
Carbon Disulfide	17.3	N.D.	17.68	18.77	102	109	48-146	6	30
Freon 113	17.3	N.D.	18.98	18.42	110	106	56-156	3	30
Methyl Acetate	17.3	N.D.	20.18	21.37	117	124	48-161	6	30
1,1,1-Trichloroethane	17.3	N.D.	19.87	18.59	115	107	64-142	7	30
1,1-Dichloroethane	17.3	N.D.	17.06	16.88	99	98	63-142	1	30
1,1-Dichloropropene	17.3	N.D.	18.23	17.35	105	100	54-145	5	30
1,2-Dichloroethane	17.3	N.D.	20.13	19.09	116	110	68-131	5	30
1,2-Dichloropropane	17.3	N.D.	14.91	14.48	86	84	62-135	3	30
2,2-Dichloropropane	17.3	N.D.	16.23	15.33	94	89	53-147	6	30
2-Butanone	129.76	N.D.	155.61	139.42	120	107	37-163	11	30
4-Methyl-2-pentanone	86.51	N.D.	99.34	91.14	115	105	46-139	9	30
Benzene	17.3	N.D.	16.81	16.03	97	93	55-143	5	30
Bromochloromethane	17.3	N.D.	17.	18.	98	104	60-137	6	30
Bromodichloromethane	17.3	N.D.	16.4	15.76	95	91	53-136	4	30
Carbon Tetrachloride	17.3	N.D.	20.02	18.95	116	110	45-153	5	30
Chloroform	17.3	N.D.	18.17	17.5	105	101	61-142	4	30
cis-1,2-Dichloroethene	17.3	N.D.	16.87	16.11	98	93	60-136	5	30
cis-1,3-Dichloropropene	17.3	N.D.	14.61	14.37	84	83	51-131	2	30
Cyclohexane	17.3	N.D.	16.8	16.57	97	96	57-151	1	30
Dibromomethane	17.3	N.D.	17.03	16.1	98	93	57-130	6	30
Methyl Tertiary Butyl Ether	17.3	N.D.	17.99	17.25	104	100	55-129	4	30
Methylcyclohexane	17.3	N.D.	16.36	17.7	95	102	39-168	8	30
Methylene Chloride	17.3	N.D.	16.17	15.54	93	90	61-141	4	30
Toluene	17.3	N.D.	17.61	16.9	102	98	50-146	4	30
trans-1,2-Dichloroethene	17.3	N.D.	17.79	16.85	103	97	59-142	5	30
Trichloroethene	17.3	N.D.	17.85	16.52	103	95	53-144	8	30
Vinyl Acetate	80.78	N.D.	59.48	76.4	74	92	21-139	25	30
1,1,1,2-Tetrachloroethane	17.3	N.D.	18.45	17.67	107	102	52-130	4	30
1,1,2,2-Tetrachloroethane	17.3	N.D.	16.13	15.19	93	88	40-152	6	30
1,1,2-Trichloroethane	17.3	N.D.	17.05	17.14	99	99	54-139	1	30
1,2,3-Trichloropropane	17.3	N.D.	19.03	17.88	110	103	45-154	6	30
1,2,4-Trimethylbenzene	17.3	N.D.	18.44	17.76	107	103	37-149	4	30
1,2-Dibromo-3-chloropropane	17.3	N.D.	20.58	18.75	119	108	30-139	9	30
1,2-Dibromoethane	17.3	N.D.	18.19	17.58	105	102	54-129	3	30

Results are being reported on an as received basis.

GC/MS Volatiles

Fraction: Volatiles by GC/MS

UNSPK: 6499035 MS: 6499036 MSD: 6499037 Analyte	Batch: **A113541AA** (Sample number(s): 6499034-6499037, 6499039-6499050)								
	Spike Added ug/kg	Unspiked Conc ug/kg	MS Conc ug/kg	MSD Conc ug/kg	MS %Rec	MSD %Rec	%Rec Limits	%RPD	%RPD Limits
1,2-Dichlorobenzene	17.3	N.D.	17.85	17.16	103	99	36-133	4	30
1,3,5-Trimethylbenzene	17.3	N.D.	18.91	17.89	109	103	38-150	6	30
1,3-Dichlorobenzene	17.3	N.D.	18.34	17.54	106	101	34-134	4	30
1,3-Dichloropropane	17.3	N.D.	16.6	16.21	96	94	58-129	2	30
1,4-Dichlorobenzene	17.3	N.D.	17.92	17.25	104	100	35-136	4	30
2-Chlorotoluene	17.3	N.D.	17.76	17.18	103	99	42-146	3	30
2-Hexanone	86.51	N.D.	90.26	82.96	104	96	32-160	8	30
4-Chlorotoluene	17.3	N.D.	18.08	17.2	104	99	39-145	5	30
Bromobenzene	17.3	N.D.	18.64	17.97	108	104	43-139	4	30
Bromoform	17.3	N.D.	18.05	16.87	104	98	38-124	7	30
Chlorobenzene	17.3	N.D.	17.75	17.34	103	100	49-135	2	30
Dibromochloromethane	17.3	N.D.	17.48	17.	101	98	51-128	3	30
Ethylbenzene	17.3	N.D.	18.4	17.58	106	102	44-141	5	30
Isopropylbenzene	17.3	N.D.	19.12	18.58	110	107	38-144	3	30
m+p-Xylene	34.6	N.D.	36.22	35.05	105	101	44-137	3	30
n-Butylbenzene	17.3	N.D.	16.69	16.42	96	95	30-146	2	30
n-Propylbenzene	17.3	N.D.	18.21	17.28	105	100	39-157	5	30
o-Xylene	17.3	N.D.	17.49	16.75	101	97	42-137	4	30
p-Isopropyltoluene	17.3	N.D.	18.84	18.39	109	106	29-152	2	30
sec-Butylbenzene	17.3	N.D.	18.67	18.14	108	105	33-157	3	30
Styrene	17.3	N.D.	8.38	7.41	48	43	35-134	12	30
tert-Butylbenzene	17.3	N.D.	19.	18.3	110	106	41-152	4	30
Tetrachloroethene	17.3	N.D.	21.16	20.5	122	119	42-149	3	30
trans-1,3-Dichloropropene	17.3	N.D.	15.21	15.02	88	87	49-129	1	30
1,2,3-Trichlorobenzene	17.3	N.D.	17.51	17.54	101	101	10-140	0	30
1,2,4-Trichlorobenzene	17.3	N.D.	16.82	16.88	97	98	10-136	0	30
Hexachlorobutadiene	17.3	N.D.	18.81	20.04	109	116	10-155	6	30
Naphthalene	17.3	N.D.	16.96	16.62	98	96	10-138	2	30

Results are being reported on an as received basis.

GC/MS Volatiles

Fraction: Volatiles by GC/MS

LCS: LCS1A77	Batch: **A113541AA** (Sample number(s): 6499034-6499037, 6499039-6499050)							
Analyte	**Spike Added ug/kg**	**LCS Conc ug/kg**	**LCSD Conc ug/kg**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Vinyl Acetate	100	85.72		86		56-137		

LCS: LCSA77	Batch: **A113541AA** (Sample number(s): 6499034-6499037, 6499039-6499050)							
Analyte	**Spike Added ug/kg**	**LCS Conc ug/kg**	**LCSD Conc ug/kg**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Dichlorodifluoromethane	20	18.71		94		20-120		
Chloromethane	20	14.6		73		54-132		
Vinyl Chloride	20	15.51		78		53-120		
Bromomethane	20	19.14		96		32-162		
Chloroethane	20	16.84		84		37-154		
Trichlorofluoromethane	20	22.31		112		58-133		
1,1-Dichloroethene	20	18.18		91		73-123		
Acetone	150	201.78		135		32-209		
Carbon Disulfide	20	16.13		81		67-122		
Freon 113	20	19.05		95		61-126		
Methyl Acetate	20	22.86		114		61-152		
1,1,1-Trichloroethane	20	21		105		71-125		
1,1-Dichloroethane	20	18.19		91		80-120		
1,1-Dichloropropene	20	18.63		93		77-120		
1,2-Dichloroethane	20	21.59		108		71-129		
1,2-Dichloropropane	20	15.99		80		80-120		
2,2-Dichloropropane	20	19.33		97		72-123		
2-Butanone	150	131.27		88		46-153		
4-Methyl-2-pentanone	100	86.21		86		61-134		
Benzene	20	17.55		88		80-120		
Bromochloromethane	20	19.41		97		79-124		
Bromodichloromethane	20	18.34		92		78-120		
Carbon Tetrachloride	20	21.35		107		69-122		
Chloroform	20	19.78		99		80-120		
cis-1,2-Dichloroethene	20	17.7		88		80-120		
cis-1,3-Dichloropropene	20	16.46		82		80-120		
Cyclohexane	20	16.36		82		62-121		
Dibromomethane	20	18.14		91		80-120		
Methyl Tertiary Butyl Ether	20	19.04		95		74-121		
Methylcyclohexane	20	17.64		88		57-138		
Methylene Chloride	20	17.3		86		76-124		
Toluene	20	18.44		92		80-120		
trans-1,2-Dichloroethene	20	18.32		92		79-120		
Trichloroethene	20	18.37		92		80-120		
1,1,1,2-Tetrachloroethane	20	20.55		103		80-120		
1,1,2,2-Tetrachloroethane	20	15.01		75		71-123		

GC/MS Volatiles

Fraction: Volatiles by GC/MS

LCS: LCSA77	Batch: **A113541AA** (Sample number(s): 6499034-6499037, 6499039-6499050)							
Analyte	**Spike Added ug/kg**	**LCS Conc ug/kg**	**LCSD Conc ug/kg**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
1,1,2-Trichloroethane	20	18		90		80-120		
1,2,3-Trichloropropane	20	18.68		93		71-123		
1,2,4-Trimethylbenzene	20	19.22		96		79-120		
1,2-Dibromo-3-chloropropane	20	18.27		91		58-120		
1,2-Dibromoethane	20	18.94		95		80-120		
1,2-Dichlorobenzene	20	19.58		98		79-120		
1,3,5-Trimethylbenzene	20	19.61		98		78-120		
1,3-Dichlorobenzene	20	19.72		99		78-120		
1,3-Dichloropropane	20	17.84		89		80-120		
1,4-Dichlorobenzene	20	19.67		98		79-120		
2-Chlorotoluene	20	18.77		94		78-120		
2-Hexanone	100	78.3		78		45-155		
4-Chlorotoluene	20	19.23		96		79-120		
Bromobenzene	20	19.81		99		79-120		
Bromoform	20	19.22		96		70-120		
Chlorobenzene	20	19.36		97		80-120		
Dibromochloromethane	20	19.3		97		77-120		
Ethylbenzene	20	19.42		97		80-120		
Isopropylbenzene	20	20.5		102		76-120		
m+p-Xylene	40	39.31		98		80-120		
n-Butylbenzene	20	18.26		91		72-120		
n-Propylbenzene	20	18.67		93		77-120		
o-Xylene	20	18.88		94		80-120		
p-Isopropyltoluene	20	20.06		100		75-120		
sec-Butylbenzene	20	19.09		95		75-120		
Styrene	20	19.64		98		76-120		
tert-Butylbenzene	20	19.2		96		75-120		
Tetrachloroethene	20	22.13		111		77-120		
trans-1,3-Dichloropropene	20	17.62		88		77-120		
1,2,3-Trichlorobenzene	20	21.41		107		64-120		
1,2,4-Trichlorobenzene	20	20.44		102		68-120		
Hexachlorobutadiene	20	23.5		118		57-120		
Naphthalene	20	19.05		95		59-123		

LCS: LCS1A80	Batch: **A113561AA** (Sample number(s): 6499051-6499052)							
Analyte	**Spike Added ug/kg**	**LCS Conc ug/kg**	**LCSD Conc ug/kg**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Vinyl Acetate	100	92		92		56-137		

GC/MS Volatiles

Fraction: Volatiles by GC/MS

LCS: LCSA80	Batch: **A113561AA** (Sample number(s): 6499051-6499052)							
Analyte	Spike Added ug/kg	LCS Conc ug/kg	LCSD Conc ug/kg	LCS %Rec	LCSD %Rec	%Rec Limits	%RPD	%RPD Limits
Dichlorodifluoromethane	20	15.75		79		20-120		
Chloromethane	20	15.31		77		54-132		
Vinyl Chloride	20	15.52		78		53-120		
Bromomethane	20	17.46		87		32-162		
Chloroethane	20	16.7		83		37-154		
Trichlorofluoromethane	20	21.02		105		58-133		
1,1-Dichloroethene	20	17.62		88		73-123		
Acetone	150	169.86		113		32-209		
Carbon Disulfide	20	16.35		82		67-122		
Freon 113	20	18.46		92		61-126		
Methyl Acetate	20	24.92		125		61-152		
1,1,1-Trichloroethane	20	18.99		95		71-125		
1,1-Dichloroethane	20	19.27		96		80-120		
1,1-Dichloropropene	20	19.04		95		77-120		
1,2-Dichloroethane	20	22.26		111		71-129		
1,2-Dichloropropane	20	17.89		89		80-120		
2,2-Dichloropropane	20	17.82		89		72-123		
2-Butanone	150	173.74		116		46-153		
4-Methyl-2-pentanone	100	112.99		113		61-134		
Benzene	20	18.53		93		80-120		
Bromochloromethane	20	18.32		92		79-124		
Bromodichloromethane	20	18.22		91		78-120		
Carbon Tetrachloride	20	18.71		94		69-122		
Chloroform	20	19.38		97		80-120		
cis-1,2-Dichloroethene	20	17.96		90		80-120		
cis-1,3-Dichloropropene	20	17.36		87		80-120		
Cyclohexane	20	19.59		98		62-121		
Dibromomethane	20	18.45		92		80-120		
Methyl Tertiary Butyl Ether	20	19.37		97		74-121		
Methylcyclohexane	20	20.22		101		57-138		
Methylene Chloride	20	17.39		87		76-124		
Toluene	20	18.95		95		80-120		
trans-1,2-Dichloroethene	20	17.68		88		79-120		
Trichloroethene	20	18.3		91		80-120		
1,1,1,2-Tetrachloroethane	20	18.86		94		80-120		
1,1,2,2-Tetrachloroethane	20	19		95		71-123		
1,1,2-Trichloroethane	20	19.37		97		80-120		
1,2,3-Trichloropropane	20	19.82		99		71-123		
1,2,4-Trimethylbenzene	20	20.16		101		79-120		
1,2-Dibromo-3-chloropropane	20	21.57		108		58-120		
1,2-Dibromoethane	20	19.74		99		80-120		

GC/MS Volatiles

Fraction: Volatiles by GC/MS

LCS: LCSA80	Batch: **A113561AA** (Sample number(s): 6499051-6499052)							
Analyte	**Spike Added ug/kg**	**LCS Conc ug/kg**	**LCSD Conc ug/kg**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
1,2-Dichlorobenzene	20	19.13		96		79-120		
1,3,5-Trimethylbenzene	20	20.41		102		78-120		
1,3-Dichlorobenzene	20	19.58		98		78-120		
1,3-Dichloropropane	20	19.68		98		80-120		
1,4-Dichlorobenzene	20	19.44		97		79-120		
2-Chlorotoluene	20	18.75		94		78-120		
2-Hexanone	100	99.4		99		45-155		
4-Chlorotoluene	20	19.44		97		79-120		
Bromobenzene	20	19.37		97		79-120		
Bromoform	20	18.2		91		70-120		
Chlorobenzene	20	18.95		95		80-120		
Dibromochloromethane	20	17.99		90		77-120		
Ethylbenzene	20	20.04		100		80-120		
Isopropylbenzene	20	20.47		102		76-120		
m+p-Xylene	40	38.61		97		80-120		
n-Butylbenzene	20	19.88		99		72-120		
n-Propylbenzene	20	20.43		102		77-120		
o-Xylene	20	19.06		95		80-120		
p-Isopropyltoluene	20	20.37		102		75-120		
sec-Butylbenzene	20	20.32		102		75-120		
Styrene	20	20.06		100		76-120		
tert-Butylbenzene	20	19.37		97		75-120		
Tetrachloroethene	20	19.9		100		77-120		
trans-1,3-Dichloropropene	20	18.22		91		77-120		
1,2,3-Trichlorobenzene	20	20.61		103		64-120		
1,2,4-Trichlorobenzene	20	19.52		98		68-120		
Hexachlorobutadiene	20	20.65		103		57-120		
Naphthalene	20	20.34		102		59-123		

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_DHR08___

Lab File ID: ag05t01.d BFB Injection Date: 08/05/11

Instrument ID: HP09685 BFB Injection Time: 16:24

Matrix: (soil/water) SOIL Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	16.65
75	30.0 - 60.0% of mass 95	47.62
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.92
173	Less than 2.0% of mass 174	0.50 (0.60)1
174	Greater than 50.0% of mass 95	83.83
175	5.0 - 9.0% of mass 174	5.89 (7.02)1
176	Greater than 95.0%, but less than 101.0% of mass 174	81.23 (96.90)1
177	5.0 - 9.0% of mass 176	5.36 (6.60)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD300	ag05i01.d	08/05/11	16:46
02	VSTD100	ag05i02.d	08/05/11	17:09
03	VSTD50	ag05i03.d	08/05/11	17:31
04	VSTD20	ag05i04.d	08/05/11	17:54
05	VSTD10	ag05i05.d	08/05/11	18:16
06	VSTD4	ag05i06.d	08/05/11	18:39
07	VSTD0001	ag05m01.d	08/05/11	19:01
08	VSTD300	ag05i11.d	08/05/11	19:24
09	VSTD100	ag05i12.d	08/05/11	19:46
10	VSTD50	ag05i13.d	08/05/11	20:09
11	VSTD20	ag05i14.d	08/05/11	20:31
12	VSTD10	ag05i15.d	08/05/11	20:54
13	VSTD4	ag05i16.d	08/05/11	21:17
14	VSTD0001	ag05m11.d	08/05/11	21:39
15	VBLKA00	ag05b01.d	08/05/11	22:02
16	LCS1A00	ag05l02.d	08/05/11	22:47
17	6355784RE	ag05s01.d	08/05/11	23:09
18	LCSA00	ag05l03.d	08/05/11	23:53
19	LCDA00	ag05l04.d	08/06/11	00:18
20	LCD1A00	ag05l05.d	08/06/11	00:41
21	6364612	ag05s02.d	08/06/11	01:34
22	6364610	ag05s03.d	08/06/11	01:56

DHR08 0107

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.: DHR08___

Lab File ID: ag05t01.d BFB Injection Date: 08/05/11

Instrument ID: HP09685 BFB Injection Time: 16:24

Matrix: (soil/water) SOIL Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	16.65
75	30.0 - 60.0% of mass 95	47.62
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.92
173	Less than 2.0% of mass 174	0.50 (0.60)1
174	Greater than 50.0% of mass 95	83.83
175	5.0 - 9.0% of mass 174	5.89 (7.02)1
176	Greater than 95.0%, but less than 101.0% of mass 174	81.23 (96.90)1
177	5.0 - 9.0% of mass 176	5.36 (6.60)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
23	6365515	ag05s05.d	08/06/11	02:41
24	6365516	ag05s06.d	08/06/11	03:03
25	6365519	ag05s07.d	08/06/11	03:25
26	6365520	ag05s08.d	08/06/11	03:48
27	6365518	ag05s09.d	08/06/11	04:11

DHR08 8168

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_DHR08___

Lab File ID: ag29t01.d BFB Injection Date: 08/29/11

Instrument ID: HP09685 BFB Injection Time: 16:52

Matrix: (soil/water) SOIL Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	17.47
75	30.0 - 60.0% of mass 95	47.38
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.88
173	Less than 2.0% of mass 174	0.19 (0.23)1
174	Greater than 50.0% of mass 95	81.05
175	5.0 - 9.0% of mass 174	5.81 (7.17)1
176	Greater than 95.0%, but less than 101.0% of mass 174	78.18 (96.46)1
177	5.0 - 9.0% of mass 176	5.29 (6.77)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD300	ag29i01.d	08/29/11	17:17
02	VSTD100	ag29i02.d	08/29/11	17:40
03	VSTD50	ag29i03.d	08/29/11	18:03
04	VSTD20	ag29i04.d	08/29/11	18:26
05	VSTD10	ag29i05.d	08/29/11	18:49
06	VSTD4	ag29i06.d	08/29/11	19:12
07	VSTD50	ag29c01.d	08/29/11	20:04
08	VBLKA16	ag29b01.d	08/29/11	20:27
09	LCSA16	ag29l01.d	08/29/11	21:03
10	LCDA16	ag29l02.d	08/29/11	21:26
11	LCS1A16	ag29l03.d	08/29/11	22:01
12	LCD1A16	ag29l04.d	08/29/11	22:24
13	6379844RE	ag29s01.d	08/29/11	23:15
14	6382780	ag29s02.d	08/29/11	23:37
15	6382781	ag29s03.d	08/30/11	00:00
16	6388146	ag29s04.d	08/30/11	00:23
17	6389936	ag29s05.d	08/30/11	00:45
18	6389939	ag29s06.d	08/30/11	01:08
19	6389940	ag29s07.d	08/30/11	01:31
20	6389941	ag29s08.d	08/30/11	01:53
21	6389938	ag29s10.d	08/30/11	02:38
22	6388139	ag29s11.d	08/30/11	03:01

DHR08 0189

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_DHR08___

Lab File ID: ag29t01.d BFB Injection Date: 08/29/11

Instrument ID: HP09685 BFB Injection Time: 16:52

Matrix: (soil/water) SOIL Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	17.47
75	30.0 - 60.0% of mass 95	47.38
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.88
173	Less than 2.0% of mass 174	0.19 (0.23)1
174	Greater than 50.0% of mass 95	81.05
175	5.0 - 9.0% of mass 174	5.81 (7.17)1
176	Greater than 95.0%, but less than 101.0% of mass 174	78.18 (96.46)1
177	5.0 - 9.0% of mass 176	5.29 (6.77)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
23	6388141	ag29s13.d	08/30/11	03:46
24	6386799	ag29s15.d	08/30/11	04:31

DHR08 0116

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.: DHR08___

Lab File ID: ad20t01.d BFB Injection Date: 12/20/11

Instrument ID: HP09685 BFB Injection Time: 10:25

Matrix: (soil/water) SOIL Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	18.84
75	30.0 - 60.0% of mass 95	51.86
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.89
173	Less than 2.0% of mass 174	0.22 (0.22)1
174	Greater than 50.0% of mass 95	99.44
175	5.0 - 9.0% of mass 174	7.37 (7.41)1
176	Greater than 95.0%, but less than 101.0% of mass 174	98.04 (98.59)1
177	5.0 - 9.0% of mass 176	6.21 (6.34)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD50	ad20c01.d	12/20/11	10:49
02	VSTD50	ad20c02.d	12/20/11	11:16
03	VBLKA77	ad20b01.d	12/20/11	12:02
04	LCSA77	ad20l01.d	12/20/11	12:33
05	LCS1A77	ad20l02.d	12/20/11	13:16
06	6497123	ad20s01.d	12/20/11	14:06
07	6500584	ad20s02.d	12/20/11	14:28
08	6500585	ad20s03.d	12/20/11	14:51
09	6500586	ad20s04.d	12/20/11	15:14
10	6499034	ad20s05.d	12/20/11	15:36
11	6499035	ad20s06.d	12/20/11	15:59
12	6499036MS	ad20s07.d	12/20/11	16:22
13	6499037MSD	ad20s08.d	12/20/11	16:44
14	6499036MS1	ad20s09.d	12/20/11	17:07
15	6499037MSD1	ad20s10.d	12/20/11	17:30
16	6499039	ad20s11.d	12/20/11	17:53
17	6499040	ad20s12.d	12/20/11	18:15
18	6499041	ad20s13.d	12/20/11	18:38
19	6499042	ad20s14.d	12/20/11	19:01
20	6499043	ad20s15.d	12/20/11	19:24
21	6499044	ad20s16.d	12/20/11	19:47
22	6499045	ad20s17.d	12/20/11	20:09

DHR08 0111

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_DHR08___

Lab File ID: ad20t01.d BFB Injection Date: 12/20/11

Instrument ID: HP09685 BFB Injection Time: 10:25

Matrix: (soil/water) SOIL Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	18.84
75	30.0 - 60.0% of mass 95	51.86
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.89
173	Less than 2.0% of mass 174	0.22 (0.22)1
174	Greater than 50.0% of mass 95	99.44
175	5.0 - 9.0% of mass 174	7.37 (7.41)1
176	Greater than 95.0%, but less than 101.0% of mass 174	98.04 (98.59)1
177	5.0 - 9.0% of mass 176	6.21 (6.34)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
23	6499046	ad20s18.d	12/20/11	20:32
24	6499047	ad20s19.d	12/20/11	20:55
25	6499048	ad20s20.d	12/20/11	21:17
26	6499049	ad20s21.d	12/20/11	21:40
27	6499050	ad20s22.d	12/20/11	22:02

DHR08 0112

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_DHR08___

Lab File ID: ad22t05.d BFB Injection Date: 12/22/11

Instrument ID: HP09685 BFB Injection Time: 09:54

Matrix: (soil/water) SOIL Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	20.08
75	30.0 - 60.0% of mass 95	54.08
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.85
173	Less than 2.0% of mass 174	0.18 (0.20)1
174	Greater than 50.0% of mass 95	91.41
175	5.0 - 9.0% of mass 174	6.37 (6.97)1
176	Greater than 95.0%, but less than 101.0% of mass 174	88.05 (96.32)1
177	5.0 - 9.0% of mass 176	5.95 (6.76)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD50	ad22c05.d	12/22/11	10:18
02	VSTD50	ad22c06.d	12/22/11	10:40
03	VBLKA80	ad22b06.d	12/22/11	11:26
04	LCSA80	ad22101.d	12/22/11	11:50
05	LCS1A80	ad22102.d	12/22/11	12:16
06	LCD1A80	ad22103.d	12/22/11	12:39
07	6495620	ad22s00.d	12/22/11	13:02
08	6497536	ad22s01.d	12/22/11	13:25
09	6499056	ad22s02.d	12/22/11	13:48
10	6495620RE	ad22s23.d	12/22/11	14:11
11	6499057MS	ad22s03.d	12/22/11	14:33
12	6499058MSD	ad22s04.d	12/22/11	14:56
13	6497540	ad22s05.d	12/22/11	15:19
14	6497541	ad22s06.d	12/22/11	15:41
15	6497542	ad22s07.d	12/22/11	16:04
16	6499051	ad22s08.d	12/22/11	16:27
17	6499052	ad22s09.d	12/22/11	16:49
18	6499053	ad22s10.d	12/22/11	17:12
19	6499054	ad22s11.d	12/22/11	17:35
20	6499055	ad22s12.d	12/22/11	17:57
21	6499060	ad22s13.d	12/22/11	18:20
22	6499061	ad22s14.d	12/22/11	18:43

DHR08 8413

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_DHR08___

Lab File ID: ad22t05.d BFB Injection Date: 12/22/11

Instrument ID: HP09685 BFB Injection Time: 09:54

Matrix: (soil/water) SOIL Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	20.08
75	30.0 - 60.0% of mass 95	54.08
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.85
173	Less than 2.0% of mass 174	0.18 (0.20)1
174	Greater than 50.0% of mass 95	91.41
175	5.0 - 9.0% of mass 174	6.37 (6.97)1
176	Greater than 95.0%, but less than 101.0% of mass 174	88.05 (96.32)1
177	5.0 - 9.0% of mass 176	5.95 (6.76)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
23	6498432	ad22s16.d	12/22/11	19:28
24	6498437	ad22s17.d	12/22/11	19:50
25	6498441	ad22s18.d	12/22/11	20:13
26	6498445	ad22s19.d	12/22/11	20:36
27	6498439	ad22s20.d	12/22/11	20:59
28	6498443	ad22s21.d	12/22/11	21:21
29	6498446	ad22s22.d	12/22/11	21:44

DHR08 0114

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09685 Calibration Date(s): 08/05/11 08/05/11

Heated Purge: (Y/N) Y Calibration Times: 16:46 18:39

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: DB-624 ID: .25

LAB FILE ID: RRF 4 = ag05i06.d RRF 10= ag05i05.d RRF 20= ag05i04.d
RRF 50= ag05i03.d RRF100= ag05i02.d RRF300= ag05i01.d RRF =

COMPOUND	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	$\overline{RRF}$	% RSD	CAL. METHOD	
Dichlorodifluoromethane	0.4002	0.3760	0.3842	0.4671	0.4416	0.3969		0.4110	9	AVG	
Chloromethane	#0.3802	0.3704	0.3795	0.4270	0.4007	0.3664		0.3874	6	AVG	#
Vinyl Chloride	*0.4000	0.3727	0.3795	0.4384	0.4054	0.3734		0.3949	6	AVG	*
Bromomethane	0.2817	0.2727	0.2527	0.2727	0.2502	N/A		0.2660	5	AVG	
Chloroethane	0.2170	0.2137	0.2131	0.2265	0.2272	0.1444		0.2070	15	AVG	
Trichlorofluoromethane	0.4774	0.4452	0.4506	0.5253	0.5001	0.4289		0.4712	8	AVG	
Ethanol	0.1380	0.1249	0.1123	0.1192	0.1029	0.1139		0.1185	10	AVG	
Freon 123a	0.3489	0.3454	0.3458	0.3411	0.3423	0.3103		0.3390	4	AVG	
Acrolein	1.5457	1.7705	1.6582	1.9737	2.2793	1.8750		1.8504	14	AVG	
1,1-Dichloroethene	*0.2531	0.2489	0.2567	0.2566	0.2644	0.2388		0.2531	3	AVG	*
Dichlorofluoromethane	0.5932	0.5823	0.5781	0.5530	0.5418	0.4541		0.5504	9	AVG	
Freon 113	0.2717	0.2619	0.2648	0.2770	0.2857	0.2538		0.2691	4	AVG	
Acetone	0.0333	0.0266	0.0280	0.0334	0.0291	0.0264		0.0295	11	AVG	
Methyl Iodide	0.4626	0.4847	0.4984	0.4917	0.5047	0.4584		0.4834	4	AVG	
2-Propanol	0.7445	0.7607	0.7236	0.7004	0.6938	0.7118		0.7225	4	AVG	
Carbon Disulfide	0.8279	0.8424	0.8717	0.8706	0.9053	0.7976		0.8526	4	AVG	
Allyl Chloride	0.3826	0.3487	0.3538	0.3764	0.3859	0.3559		0.3672	4	AVG	
Methyl Acetate	0.2347	0.1852	0.1928	0.2013	0.1906	0.1780		0.1971	10	AVG	
Methylene Chloride	0.3516	0.3239	0.3166	0.3026	0.3045	0.2757		0.3125	8	AVG	
t-Butyl Alcohol	1.2757	1.3904	1.3817	1.3347	1.3260	1.1543		1.3104	7	AVG	
Acrylonitrile	0.1113	0.0926	0.1019	0.1176	0.1052	0.0955		0.1040	9	AVG	
trans-1,2-Dichloroethene	0.2799	0.2933	0.3018	0.2967	0.3064	0.2788		0.2928	4	AVG	
Methyl Tertiary Butyl Ether	0.8152	0.8311	0.8795	0.8723	0.8511	0.7991		0.8414	4	AVG	
n-Hexane	0.3765	0.3707	0.3749	0.3921	0.4028	0.3779		0.3825	3	AVG	
1,1-Dichloroethane	#0.4903	0.5134	0.5221	0.5149	0.5237	0.4711		0.5059	4	AVG	#
2-Chloro-1,3-Butadiene	0.3755	0.3923	0.4117	0.4264	0.4446	0.4014		0.4086	6	AVG	
di-Isopropyl Ether	0.7989	0.8430	0.8641	0.8629	0.8660	0.7856		0.8368	4	AVG	
Ethyl t-Butyl Ether	0.8081	0.8504	0.8841	0.8906	0.8891	0.8223		0.8574	4	AVG	
cis-1,2-Dichloroethene	0.3194	0.3282	0.3326	0.3294	0.3369	0.3117		0.3264	3	AVG	
1,2-Dichloroethene (total)	0.2997	0.3107	0.3172	0.3130	0.3217	0.2952		0.3096	3	AVG	
2,2-Dichloropropane	0.4113	0.4270	0.4424	0.4501	0.4678	0.4236		0.4370	5	AVG	
2-Butanone	0.1437	0.1213	0.1403	0.1687	0.1493	0.1320		0.1426	11	AVG	
Propionitrile	1.3079	1.5768	1.4690	1.4129	1.4976	1.3322		1.4327	7	AVG	
Methacrylonitrile	0.1343	0.1300	0.1445	0.1467	0.1324	0.1295		0.1362	6	AVG	
Bromochloromethane	0.1590	0.1563	0.1581	0.1671	0.1657	0.1629		0.1615	3	AVG	
Tetrahydrofuran	1.1957	1.3235	1.2617	1.4254	1.5396	1.3267		1.3454	9	AVG	
Chloroform	*0.5068	0.5224	0.5322	0.5251	0.5302	0.4824		0.5165	4	AVG	*
1,1,1-Trichloroethane	0.5546	0.5085	0.5209	0.4854	0.4945	0.4518		0.5026	7	AVG	
Cyclohexane	0.4634	0.4589	0.4586	0.4779	0.4864	0.4414		0.4644	3	AVG	
Cyclohexane(mz84)	0.4303	0.4256	0.4187	0.4432	0.4447	0.4117		0.4290	3	AVG	
Cyclohexane(mz69)	0.1496	0.1491	0.1491	0.1546	0.1585	0.1446		0.1509	3	AVG	
1,1-Dichloropropene	0.3893	0.3979	0.4079	0.4087	0.4225	0.3863		0.4021	3	AVG	
Carbon Tetrachloride	0.3767	0.3851	0.3964	0.4035	0.4190	0.3866		0.3945	4	AVG	
Benzene	1.1762	1.2101	1.2149	1.1869	1.1999	1.0864		1.1791	4	AVG	
Isobutyl Alcohol	0.3775	0.4286	0.4260	0.4031	0.4012	0.3613		0.3996	7	AVG	
1,2-Dichloroethane	0.4157	0.4202	0.4289	0.4215	0.4174	0.3854		0.4148	4	AVG	
1,2-Dichloroethane(mz98)	0.0360	0.0378	0.0384	0.0378	0.0376	0.0360		0.0373	3	AVG	
t-Amyl Methyl Ether	0.7419	0.7733	0.8150	0.8246	0.8202	0.7781		0.7922	4	AVG	
n-Heptane	0.3681	0.3809	0.3895	0.3920	0.4032	0.3906		0.3874	3	AVG	
n-Butanol	0.3194	0.3728	0.3857	0.3832	0.3905	0.3596		0.3685	7	AVG	
Trichloroethene	0.3132	0.3192	0.3231	0.3206	0.3301	0.3041		0.3184	3	AVG	
Methylcyclohexane	0.5067	0.4504	0.4786	0.5390	0.5554	0.5382		0.5114	8	AVG	

Minimum RRF for SPCC(#) = 0.10
(0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %RSD for CCC(*) = 30%

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09685 Calibration Date(s): 08/05/11 08/05/11

Heated Purge: (Y/N) Y Calibration Times: 16:46 18:39

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: DB-624 ID: .25

LAB FILE ID: RRF 4 = ag05i06.d RRF 10= ag05i05.d RRF 20= ag05i04.d
RRF 50= ag05i03.d RRF100= ag05i02.d RRF300= ag05i01.d RRF =

COMPOUND	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	$\overline{RRF}$	% RSD	CAL. METHOD	
1,2-Dichloropropane	*0.2987	0.3124	0.3170	0.3167	0.3231	0.3044		0.3121	3	AVG	*
Dibromomethane	0.1961	0.1998	0.2075	0.2075	0.2042	0.1959		0.2018	3	AVG	
1,4-Dioxane	0.1310	0.1450	0.1409	0.1513	0.1462	0.1407		0.1425	5	AVG	
Methyl Methacrylate	0.2156	0.2086	0.2402	0.2508	0.2393	0.2365		0.2318	7	AVG	
Bromodichloromethane	0.3435	0.3721	0.3918	0.3992	0.4078	0.3848		0.3832	6	AVG	
2-Nitropropane	1.8434	2.2727	2.3055	2.8015	3.2583	N/A		2.4963	22	1STDEG	
cis-1,3-Dichloropropene	0.4163	0.4572	0.4864	0.4999	0.5096	0.4812		0.4751	7	AVG	
4-Methyl-2-Pentanone	0.2824	0.2570	0.3058	0.3808	0.3604	0.3012		0.3146	15	AVG	
Toluene	*1.0026	0.9895	1.0002	0.9703	0.9911	0.8950		0.9748	4	AVG	*
trans-1,3-Dichloropropene	0.5064	0.5572	0.5959	0.6148	0.6257	0.5931		0.5822	8	AVG	
Ethyl Methacrylate	0.4164	0.4523	0.5229	0.5590	0.5526	0.5332		0.5060	11	AVG	
1,1,2-Trichloroethane	0.3508	0.3546	0.3644	0.3598	0.3519	0.3329		0.3524	3	AVG	
Tetrachloroethene	0.4310	0.4413	0.4384	0.4392	0.4550	0.4170		0.4370	3	AVG	
1,3-Dichloropropane	0.5970	0.5975	0.6216	0.6202	0.6178	0.5828		0.6061	3	AVG	
2-Hexanone	0.2748	0.2403	0.2908	0.3637	0.3414	N/A		0.3022	17	1STDEG	
Dibromochloromethane	0.3318	0.3572	0.3898	0.4075	0.4170	0.4043		0.3846	9	AVG	
1,2-Dibromoethane	0.3481	0.3568	0.3797	0.3773	0.3687	0.3521		0.3638	4	AVG	
Chlorobenzene	#1.1258	1.1585	1.1582	1.1310	1.1523	1.0423		1.1280	4	AVG	#
1,1,1,2-Tetrachloroethane	0.3435	0.3754	0.3909	0.3933	0.4059	0.3887		0.3829	6	AVG	
Ethylbenzene	*1.8022	1.8905	1.8915	1.8690	1.9138	1.6258		1.8321	6	AVG	*
m+p-Xylene	0.7071	0.7486	0.7451	0.7453	0.7721	0.6211		0.7232	7	AVG	
Xylene (Total)	0.7017	0.7464	0.7450	0.7460	0.7718	0.6267		0.7229	7	AVG	
o-Xylene	0.6909	0.7418	0.7447	0.7474	0.7713	0.6381		0.7223	7	AVG	
Styrene	0.9897	1.1117	1.1913	1.2300	1.2779	1.0527		1.1422	10	AVG	
Bromoform	#0.2262	0.2449	0.2765	0.2995	0.3041	0.3036		0.2758	12	AVG	#
Isopropylbenzene	1.7089	1.8260	1.8499	1.8465	1.9076	1.6170		1.7926	6	AVG	
Cyclohexanone	0.3847	0.4284	0.4200	0.4384	0.4430	0.4332		0.4246	5	AVG	
Bromobenzene	0.8569	0.8749	0.8692	0.8577	0.8786	0.7767		0.8523	4	AVG	
1,1,2,2-Tetrachloroethane	#0.9233	0.8713	0.9367	0.9288	0.8827	0.8138		0.8928	5	AVG	#
1,2,3-Trichloropropane	0.3261	0.2749	0.2908	0.2823	0.2654	0.2355		0.2792	11	AVG	
trans-1,4-Dichloro-2-Butene	0.2646	0.2709	0.2991	0.2891	0.2727	0.2319		0.2714	9	AVG	
n-Propylbenzene	3.8059	3.9038	3.8472	3.7686	3.8029	2.9230		3.6752	10	AVG	
2-Chlorotoluene	0.7983	0.8303	0.8145	0.8005	0.8262	0.7469		0.8028	4	AVG	
1,3,5-Trimethylbenzene	2.5633	2.7366	2.7148	2.7150	2.8440	2.3211		2.6491	7	AVG	
4-Chlorotoluene	0.8282	0.8602	0.8442	0.8356	0.8687	0.7451		0.8303	5	AVG	
tert-Butylbenzene	0.5981	0.6304	0.6460	0.6489	0.6773	0.5793		0.6300	6	AVG	
Pentachloroethane	0.4867	0.4874	0.5215	0.5589	0.5795	0.5089		0.5238	7	AVG	
1,2,4-Trimethylbenzene	2.7858	2.9321	2.9291	2.9069	3.0183	2.4471		2.8366	7	AVG	
sec-Butylbenzene	3.3243	3.4797	3.5079	3.5068	3.5900	2.8416		3.3751	8	AVG	
1,3-Dichlorobenzene	1.6906	1.6950	1.6589	1.6469	1.6947	1.4122		1.6330	7	AVG	
p-Isopropyltoluene	2.9352	3.1134	3.1546	3.1696	3.2735	2.5366		3.0305	9	AVG	
1,4-Dichlorobenzene	1.7624	1.7494	1.7115	1.6685	1.7074	1.4919		1.6819	6	AVG	
1,2,3-Trimethylbenzene	2.8786	2.7433	2.8234	2.9020	2.9903	2.5109		2.8081	6	AVG	
Benzyl Chloride	0.3464	0.3669	0.4277	0.4465	0.4475	0.4332		0.4114	11	AVG	
1,2-Dichlorobenzene	1.6598	1.6703	1.6403	1.6020	1.6346	1.4334		1.6067	5	AVG	
n-Butylbenzene	1.5377	1.5876	1.6220	1.6133	1.6717	1.3990		1.5719	6	AVG	
1,3-Diethylbenzene	1.7207	1.6420	1.7472	1.8440	1.9080	1.6494		1.7519	6	AVG	
1,4-Diethylbenzene	1.8094	1.7602	1.8468	1.9346	2.0179	1.6705		1.8399	7	AVG	
1,2-Diethylbenzene	1.5474	1.4719	1.5343	1.5770	1.6474	1.4258		1.5340	5	AVG	
1,2-Dibromo-3-Chloropropane	0.1895	0.1639	0.1956	0.2019	0.1887	0.1863		0.1877	7	AVG	
1,3,5-Trichlorobenzene	1.4093	1.3392	1.3486	1.3242	1.3718	1.2078		1.3335	5	AVG	
1,2,4-Trichlorobenzene	1.4287	1.2922	1.3016	1.2941	1.3268	1.1463		1.2983	7	AVG	

Minimum RRF for SPCC(#) = 0.10
(0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %RSD for CCC(*) = 30%

DHD05 0115

6A
VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09685 Calibration Date(s): 08/05/11 08/05/11

Heated Purge: (Y/N) Y Calibration Times: 16:46 18:39

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: DB-624 ID: .25

LAB FILE ID: RRF 4 = ag05i06.d RRF 10= ag05i05.d RRF 20= ag05i04.d
RRF 50= ag05i03.d RRF100= ag05i02.d RRF300= ag05i01.d RRF =

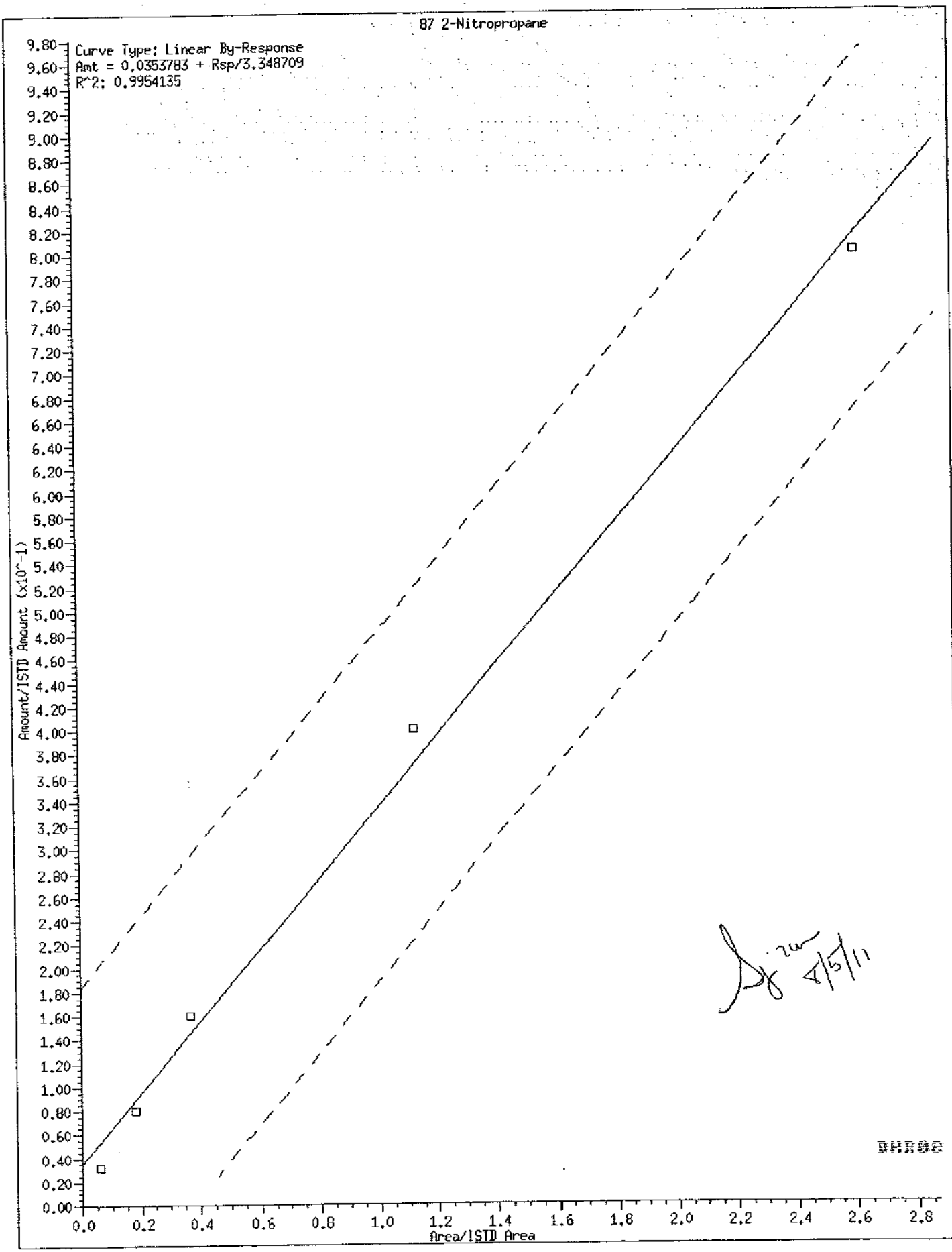
COMPOUND	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	$\overline{RRF}$	% RSD	CAL. METHOD
Hexachlorobutadiene	0.6734	0.6805	0.6972	0.6913	0.7219	0.6320		0.6827	4	AVG
Naphthalene	3.6958	3.2673	3.5174	3.4855	3.3253	2.6341		3.3209	11	AVG
1,2,3-Trichlorobenzene	1.3899	1.2388	1.2585	1.2227	1.2336	1.0627		1.2343	8	AVG
2-Methylnaphthalene	2.4273	1.9061	2.2215	2.3318	2.2521	1.8183		2.1595	11	AVG
Dibromofluoromethane	0.2424	0.2435	0.2437	0.2454	0.2418	0.2403		0.2428	1	AVG
Dibromofluoromethane(mz111)	0.2475	0.2491	0.2497	0.2507	0.2480	0.2457		0.2484	1	AVG
1,2-Dichloroethane-d4	0.0580	0.0572	0.0584	0.0573	0.0571	0.0568		0.0575	1	AVG
1,2-Dichloroethane-d4(mz65)	0.2858	0.2859	0.2853	0.2883	0.2777	0.2773		0.2834	2	AVG
1,2-Dichloroethane-d4(mz104)	0.0372	0.0359	0.0365	0.0367	0.0356	0.0362		0.0364	2	AVG
Toluene-d8	1.2710	1.2712	1.2732	1.2743	1.2715	1.2545		1.2693	1	AVG
Toluene-d8(mz100)	0.8234	0.8243	0.8261	0.8297	0.8310	0.8172		0.8253	1	AVG
4-Bromofluorobenzene	0.5074	0.5071	0.5106	0.5131	0.5132	0.5190		0.5117	1	AVG
4-Bromofluorobenzene(mz174)	0.4306	0.4308	0.4334	0.4299	0.4275	0.4340		0.4310	1	AVG

Average %RSD 6

Minimum RRF for SPCC(#) = 0.10
(0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %RSD for CCC(*) = 30%

DHR88 8117

FORM VI VOA


87 2-Nitropropane
Curve Type: Linear By-Response
Amt = 0.0353783 + Rsp/3.348709
R^2: 0.9954135
Amount/ISTD Amount (x10^-1)
Area/ISTD Area
0.00
0.20
0.40
0.60
0.80
1.00
1.20
1.40
1.60
1.80
2.00
2.20
2.40
2.60
2.80
3.00
3.20
3.40
3.60
3.80
4.00
4.20
4.40
4.60
4.80
5.00
5.20
5.40
5.60
5.80
6.00
6.20
6.40
6.60
6.80
7.00
7.20
7.40
7.60
7.80
8.00
8.20
8.40
8.60
8.80
9.00
9.20
9.40
9.60
9.80
0.0
0.2
0.4
0.6
0.8
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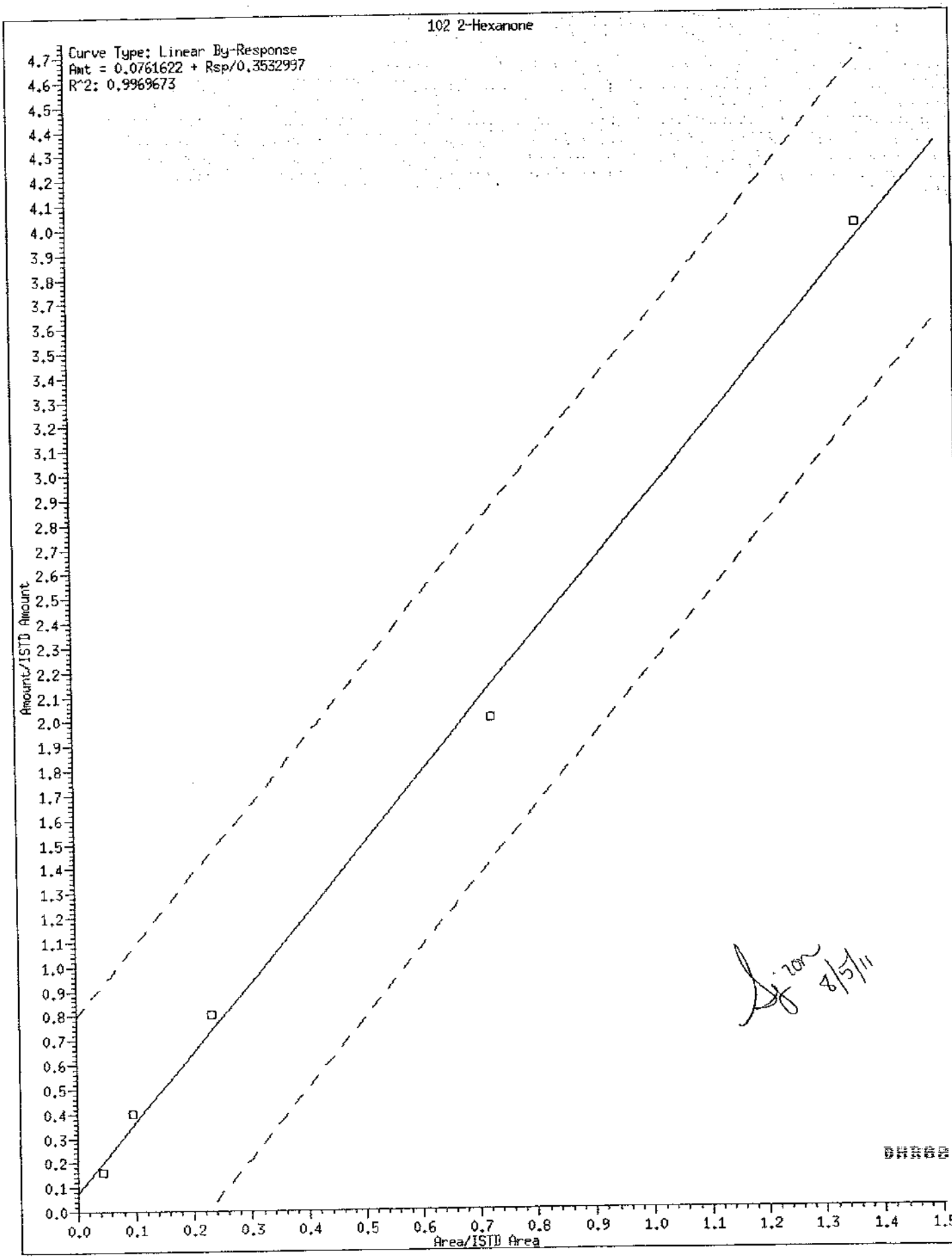
2.4
2.6
2.8
4/5/11


102 2-Hexanone
Curve Type: Linear By-Response
Amt = 0.0761622 + Rsp/0.3532997
R^2: 0.9969673
Amount/ISTD Amount
Area/ISTD Area
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
4.7
4.6
4.5
4.4
4.3
4.2
4.1
4.0
3.9
3.8
3.7
3.6
3.5
3.4
3.3
3.2
3.1
3.0
2.9
2.8
2.7
2.6
2.5
2.4
2.3
2.2
2.1
2.0
1.9
1.8
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0

8/5/11

Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem2/HP09685.i/11aug05a.b/ag05i01.d VSTD300
/chem2/HP09685.i/11aug05a.b/ag05i02.d VSTD100
/chem2/HP09685.i/11aug05a.b/ag05i03.d VSTD050
/chem2/HP09685.i/11aug05a.b/ag05i04.d VSTD020
/chem2/HP09685.i/11aug05a.b/ag05i05.d VSTD010
/chem2/HP09685.i/11aug05a.b/ag05i06.d VSTD004

Area Summary

File ID:

Internal Standard Name	ag05i01.d	ag05i02.d	ag05i03.d	ag05i04.d	ag05i05.d	ag05i06.d	Avg. Area	%RSD	In Spec
t-Butyl Alcohol-d10	226314	212391	256942	240095	196900	254796	231240	10	Yes
Fluorobenzene	1511470	1500041	1477258	1458586	1427546	1407953	1463809	3	Yes
Chlorobenzene-d5	1213175	1196725	1179094	1162981	1138664	1119047	1168281	3	Yes
1,4-Dichlorobenzene-d4	743497	710985	695398	686229	668690	653961	693127	5	Yes

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

File ID:

Internal Standard Name	ag05i01.d	ag05i02.d	ag05i03.d	ag05i04.d	ag05i05.d	ag05i06.d	Avg. RT
t-Butyl Alcohol-d10	3.958	3.945	3.958	3.951	3.952	3.952	3.953
Fluorobenzene	7.413	7.407	7.413	7.413	7.407	7.413	7.411
Chlorobenzene-d5	10.960	10.954	10.954	10.960	10.954	10.954	10.956
1,4-Dichlorobenzene-d4	12.858	12.852	12.852	12.852	12.852	12.852	12.853

* indicates the retention time is greater than 30 seconds from the average RT.

Report generated on 08/05/2011 at 20:26.

INITIAL CALIBRATION VERIFICATION

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09685 ICV Date: 08/05/11 Time: 23:53

Lab File ID: ag05103.d Init. Calib. Date(s): 08/05/11 08/05/11

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: DB-624 ID: .25

	COMPOUND	RRF	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	Dichlorodifluoromethane	0.4110	0.3893	18.94	20	-5	
#	Chloromethane	0.3874	0.4223	21.80	20	9	#
*	Vinyl Chloride	0.3949	0.4258	21.56	20	8	*
	Bromomethane	0.2660	0.2237	16.82	20	-16	
	Chloroethane	0.2070	0.1928	18.63	20	-7	
	Trichlorofluoromethane	0.4712	0.5130	21.77	20	9	
	Ethanol	0.1185	0.1260	1062.90	1000	6	
	Freon 123a	0.3390	0.3378	19.93	20	0	
	Acrolein	1.8504	1.5375	124.64	150	-17	
*	1,1-Dichloroethene	0.2531	0.2553	20.17	20	1	*
	Dichlorofluoromethane	0.5504	0.5645	20.51	20	3	
	Freon 113	0.2691	0.2486	18.47	20	-8	
	Acetone	0.0295	0.0372	189.52	150	26	
	Methyl Iodide	0.4834	0.4327	17.90	20	-10	
	2-Propanol	0.7225	0.7201	149.51	150	0	
	Carbon Disulfide	0.8526	0.7227	16.95	20	-15	
	Allyl Chloride	0.3672	0.3470	18.90	20	-5	
	Methyl Acetate	0.1971	0.2651	26.90	20	34	
	Methylene Chloride	0.3125	0.3145	20.13	20	1	
	t-Butyl Alcohol	1.3104	1.5839	241.73	200	21	
	Acrylonitrile	0.1040	0.1173	112.74	100	13	
	trans-1,2-Dichloroethene	0.2928	0.2868	19.59	20	-2	
	Methyl Tertiary Butyl Ether	0.8414	0.7886	18.75	20	-6	
	n-Hexane	0.3825	0.3317	17.34	20	-13	
#	1,1-Dichloroethane	0.5059	0.4891	19.33	20	-3	#
	2-Chloro-1,3-Butadiene	0.4086	0.3671	17.96	20	-10	
	di-Isopropyl Ether	0.8368	0.7625	18.23	20	-9	
	Ethyl t-Butyl Ether	0.8574	0.7520	17.54	20	-12	
	cis-1,2-Dichloroethene	0.3264	0.3124	19.15	20	-4	
	1,2-Dichloroethene (total)	0.3096	0.2996	38.74	40	-3	
	2,2-Dichloropropane	0.4370	0.3974	18.18	20	-9	
	2-Butanone	0.1426	0.1557	163.84	150	9	
	Propionitrile	1.4327	1.5166	158.78	150	6	
	Methacrylonitrile	0.1362	0.1500	165.18	150	10	
	Bromochloromethane	0.1615	0.1598	19.79	20	-1	
	Tetrahydrofuran	1.3454	1.3826	102.76	100	3	

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

FORM VII VOA

INITIAL CALIBRATION VERIFICATION

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09685 ICV Date: 08/05/11 Time: 23:53

Lab File ID: ag05103.d Init. Calib. Date(s): 08/05/11 08/05/11

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: DB-624 ID: .25

	COMPOUND	RRF	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT	
*	Chloroform	0.5165	0.4957	19.19	20	-4	*
	1,1,1-Trichloroethane	0.5026	0.4678	18.61	20	-7	
	Cyclohexane	0.4644	0.4127	17.77	20	-11	
	1,1-Dichloropropene	0.4021	0.3815	18.97	20	-5	
	Carbon Tetrachloride	0.3945	0.3656	18.53	20	-7	
	Benzene	1.1791	1.1647	19.76	20	-1	
	Isobutyl Alcohol	0.3996	0.4438	555.24	500	11	
	1,2-Dichloroethane	0.4148	0.4123	19.88	20	-1	
	t-Amyl Methyl Ether	0.7922	0.6996	17.66	20	-12	
	n-Heptane	0.3874	0.3339	17.24	20	-14	
	n-Butanol	0.3685	0.3888	1054.90	1000	5	
	Trichloroethene	0.3184	0.2983	18.74	20	-6	
	Methylcyclohexane	0.5114	0.4978	19.47	20	-3	
*	1,2-Dichloropropane	0.3121	0.2923	18.73	20	-6	*
	Dibromomethane	0.2018	0.1961	19.44	20	-3	
	1,4-Dioxane	0.1425	0.1500	526.31	500	5	
	Methyl Methacrylate	0.2318	0.2164	18.67	20	-7	
	Bromodichloromethane	0.3832	0.3480	18.16	20	-9	
	2-Nitropropane	2.4963	2.0897	21.33	20	7	
	cis-1,3-Dichloropropene	0.4751	0.4211	17.73	20	-11	
	4-Methyl-2-Pentanone	0.3146	0.3320	105.52	100	6	
*	Toluene	0.9748	0.9137	18.75	20	-6	*
	trans-1,3-Dichloropropene	0.5822	0.5007	17.20	20	-14	
	Ethyl Methacrylate	0.5060	0.4604	18.19	20	-9	
	1,1,2-Trichloroethane	0.3524	0.3359	19.06	20	-5	
	Tetrachloroethene	0.4370	0.4130	18.90	20	-5	
	1,3-Dichloropropane	0.6061	0.5776	19.06	20	-5	
	2-Hexanone	0.3022	0.3063	90.50	100	-10	
	Dibromochloromethane	0.3846	0.3436	17.87	20	-11	
	1,2-Dibromoethane	0.3638	0.3524	19.37	20	-3	
#	Chlorobenzene	1.1280	1.0489	18.60	20	-7	#
	1,1,1,2-Tetrachloroethane	0.3829	0.3480	18.17	20	-9	
*	Ethylbenzene	1.8321	1.7339	18.93	20	-5	*
	m+p-Xylene	0.7232	0.6954	38.46	40	-4	
	Xylene (Total)	0.7229	0.5531	57.45	60	-4	
	o-Xylene	0.7223	0.6859	18.99	20	-5	

DHRRB 0122

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

INITIAL CALIBRATION VERIFICATION

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09685 ICV Date: 08/05/11 Time: 23:53

Lab File ID: ag05l03.d Init. Calib. Date(s): 08/05/11 08/05/11

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: DB-624 ID: .25

	COMPOUND	RRF	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	Styrene	1.1422	1.0660	18.66	20	-7	
#	Bromoform	0.2758	0.2375	17.22	20	-14	#
	Isopropylbenzene	1.7926	1.7232	19.23	20	-4	
	Cyclohexanone	0.4246	0.3623	426.57	500	-15	
	Bromobenzene	0.8523	0.7988	18.74	20	-6	
#	1,1,2,2-Tetrachloroethane	0.8928	0.8712	19.52	20	-2	#
	1,2,3-Trichloropropane	0.2792	0.2739	19.62	20	-2	
	trans-1,4-Dichloro-2-Butene	0.2714	0.2976	109.67	100	10	
	n-Propylbenzene	3.6752	3.5842	19.50	20	-2	
	2-Chlorotoluene	0.8028	0.7531	18.76	20	-6	
	1,3,5-Trimethylbenzene	2.6491	2.5915	19.57	20	-2	
	4-Chlorotoluene	0.8303	0.7903	19.04	20	-5	
	tert-Butylbenzene	0.6300	0.5941	18.86	20	-6	
	Pentachloroethane	0.5238	0.4770	18.21	20	-9	
	1,2,4-Trimethylbenzene	2.8366	2.6984	19.03	20	-5	
	sec-Butylbenzene	3.3751	3.2703	19.38	20	-3	
	1,3-Dichlorobenzene	1.6330	1.5103	18.50	20	-8	
	p-Isopropyltoluene	3.0305	2.9271	19.32	20	-3	
	1,4-Dichlorobenzene	1.6819	1.5619	18.57	20	-7	
	1,2,3-Trimethylbenzene	2.8081	2.7468	19.56	20	-2	
	Benzyl Chloride	0.4114	0.3490	16.97	20	-15	
	1,2-Dichlorobenzene	1.6067	1.4932	18.59	20	-7	
	n-Butylbenzene	1.5719	1.5214	19.36	20	-3	
	1,3-Diethylbenzene	1.7519	1.7218	19.66	20	-2	
	1,4-Diethylbenzene	1.8399	1.8117	19.69	20	-2	
	1,2-Diethylbenzene	1.5340	1.4673	19.13	20	-4	
	1,2-Dibromo-3-Chloropropane	0.1877	0.1803	19.22	20	-4	
	1,3,5-Trichlorobenzene	1.3335	1.2326	18.49	20	-8	
	1,2,4-Trichlorobenzene	1.2983	1.1275	17.37	20	-13	
	Hexachlorobutadiene	0.6827	0.6074	17.79	20	-11	
	Naphthalene	3.3209	3.1311	18.86	20	-6	
	1,2,3-Trichlorobenzene	1.2343	1.1280	18.28	20	-9	
	2-Methylnaphthalene	2.1595	1.8004	16.67	20	-17	

Average %Drift 7

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09685 Calibration Date(s): 08/29/11 08/29/11

Heated Purge: (Y/N) Y Calibration Times: 17:17 19:12

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: DB-624 ID: .25

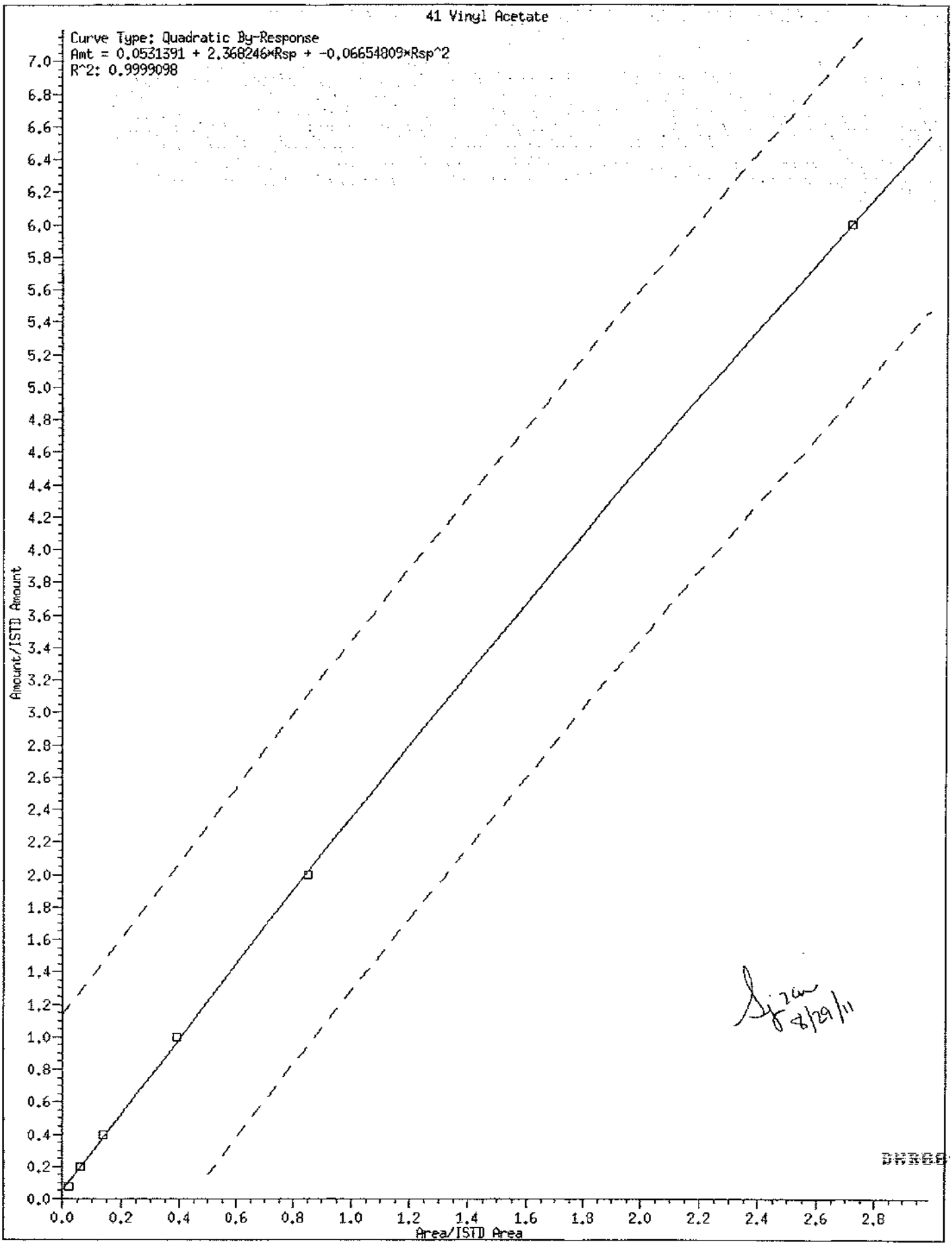
LAB FILE ID: RRF 4 = ag29i06.d RRF 10= ag29i05.d RRF 20= ag29i04.d
RRF 50= ag29i03.d RRF100= ag29i02.d RRF300= ag29i01.d RRF =

COMPOUND	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	$\overline{RRF}$	% RSD	CAL. METHOD
Chlorotrifluoroethene	0.3432	0.3254	0.3621	0.3727	0.3912	0.3837		0.3630	7	AVG
Freon 133a	0.6921	0.6188	0.6721	0.6553	0.6540	0.6050		0.6496	5	AVG
Ethyl Ether	0.2684	0.2711	0.2750	0.2825	0.2842	0.2780		0.2765	2	AVG
Acetonitrile	1.3758	1.4815	1.4215	1.4062	1.3994	1.3266		1.4018	4	AVG
Vinyl Acetate	0.2901	0.3112	0.3488	0.3920	0.4253	0.4530		0.3701	17	2NDDEG
Ethyl Acetate	0.2457	0.2624	0.2835	0.3110	0.3181	0.3406		0.2936	12	AVG
Isopropyl Acetate	0.3996	0.4404	0.4867	0.5406	0.5649	0.6073		0.5066	16	2NDDEG
n-Propyl Acetate	0.0857	0.0951	0.1112	0.1289	0.1375	0.1500		0.1181	21	2NDDEG
Epichlorohydrin	0.7957	0.7606	0.8301	0.8769	0.9756	0.9449		0.8640	10	AVG
3,4-Dichloro-1-Butene	0.2904	0.3037	0.3781	0.4229	0.4574	0.4963		0.3915	21	2NDDEG
Butyl Acetate	0.4340	0.5045	0.6019	0.6664	0.7122	0.7196		0.6064	19	1STDEG
cis-1,4-Dichloro-2-Butene	0.1052	0.1095	0.1486	0.1747	0.1883	0.2216		0.1580	29	2NDDEG
2,3,4-Trichlorobutene	0.4833	0.4874	0.6198	0.6697	0.7234	0.7759		0.6266	19	2NDDEG

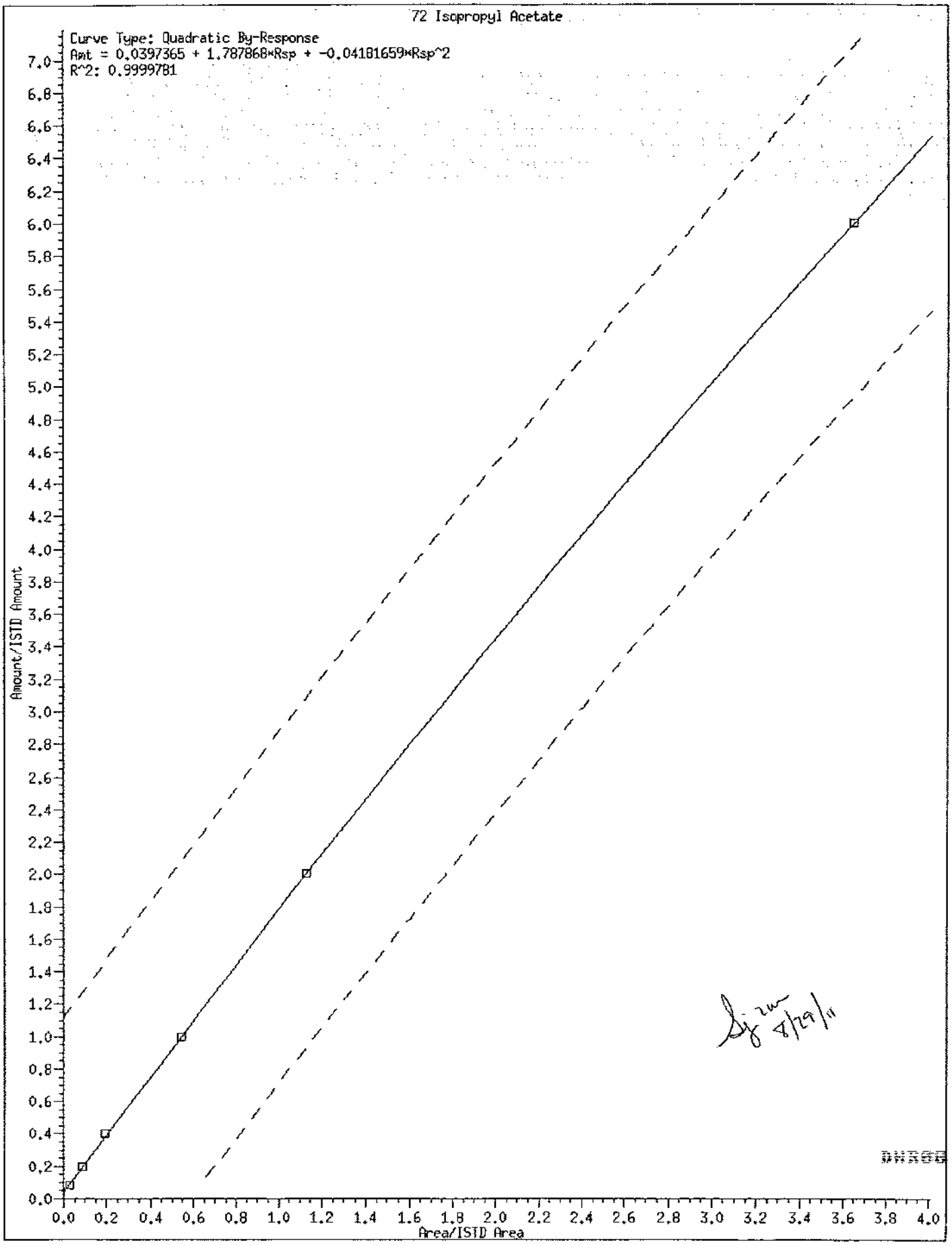
Average %RSD 14

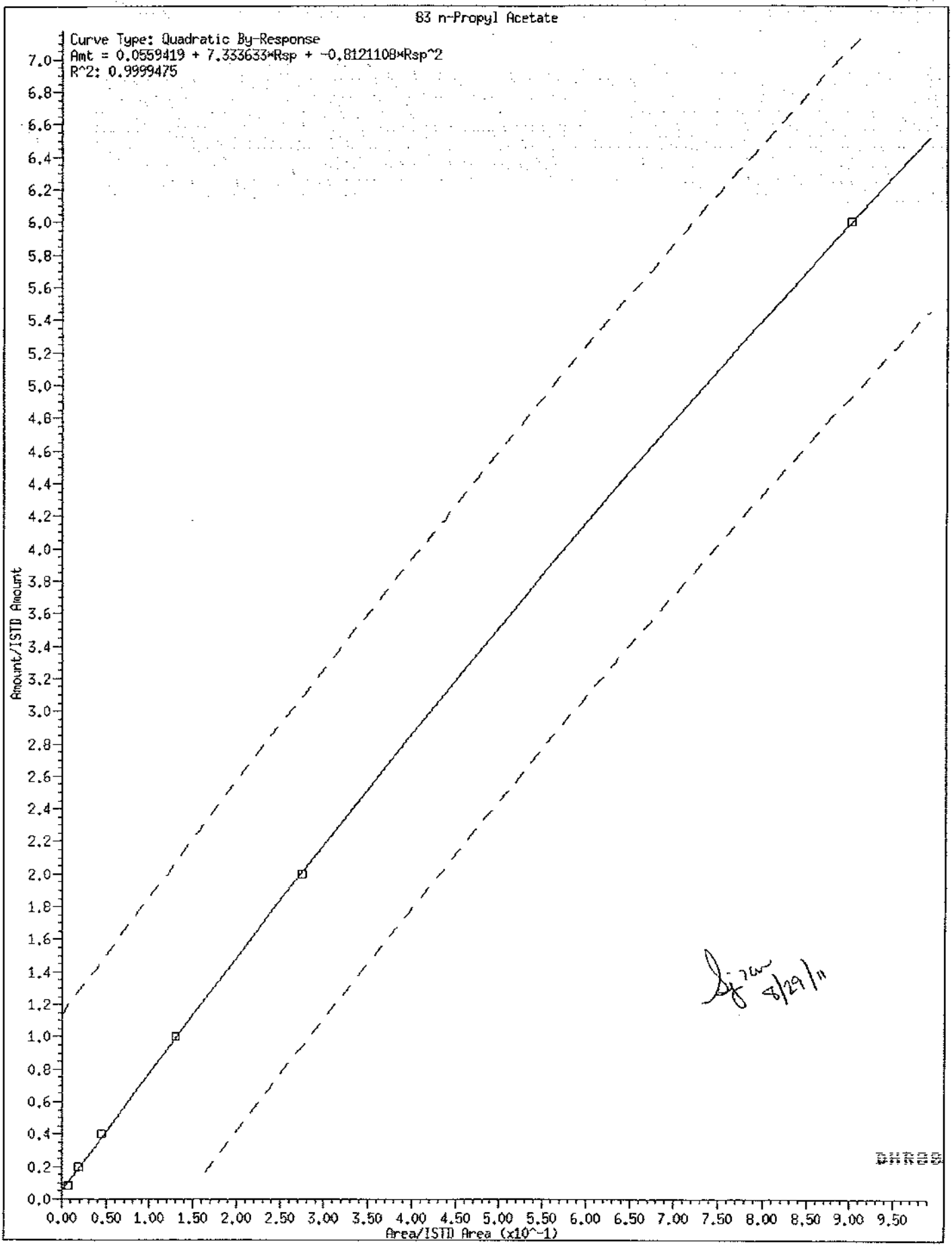
Minimum RRF for SPCC(#) = 0.10
(0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %RSD for CCC(*) = 30%

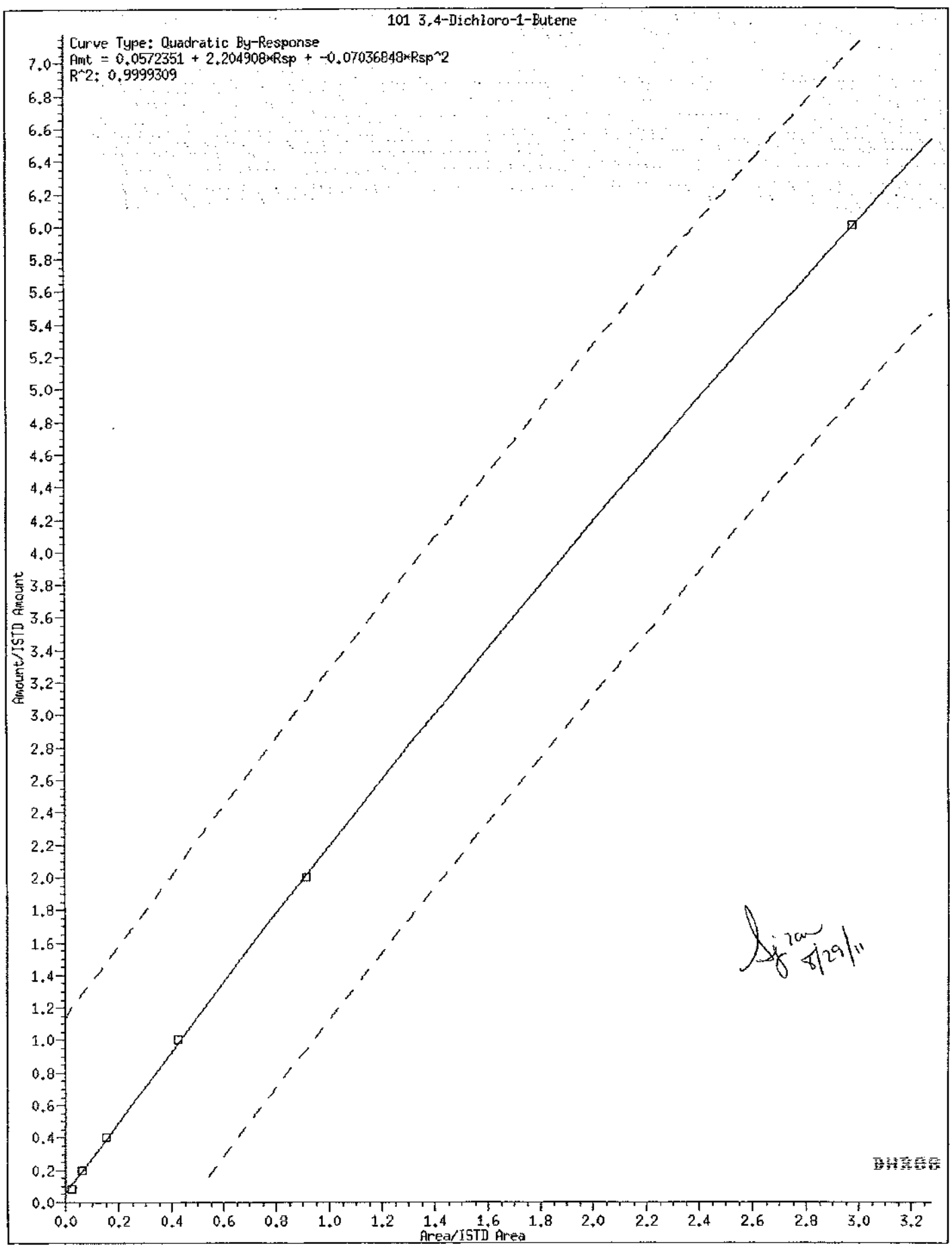
DH868 0124

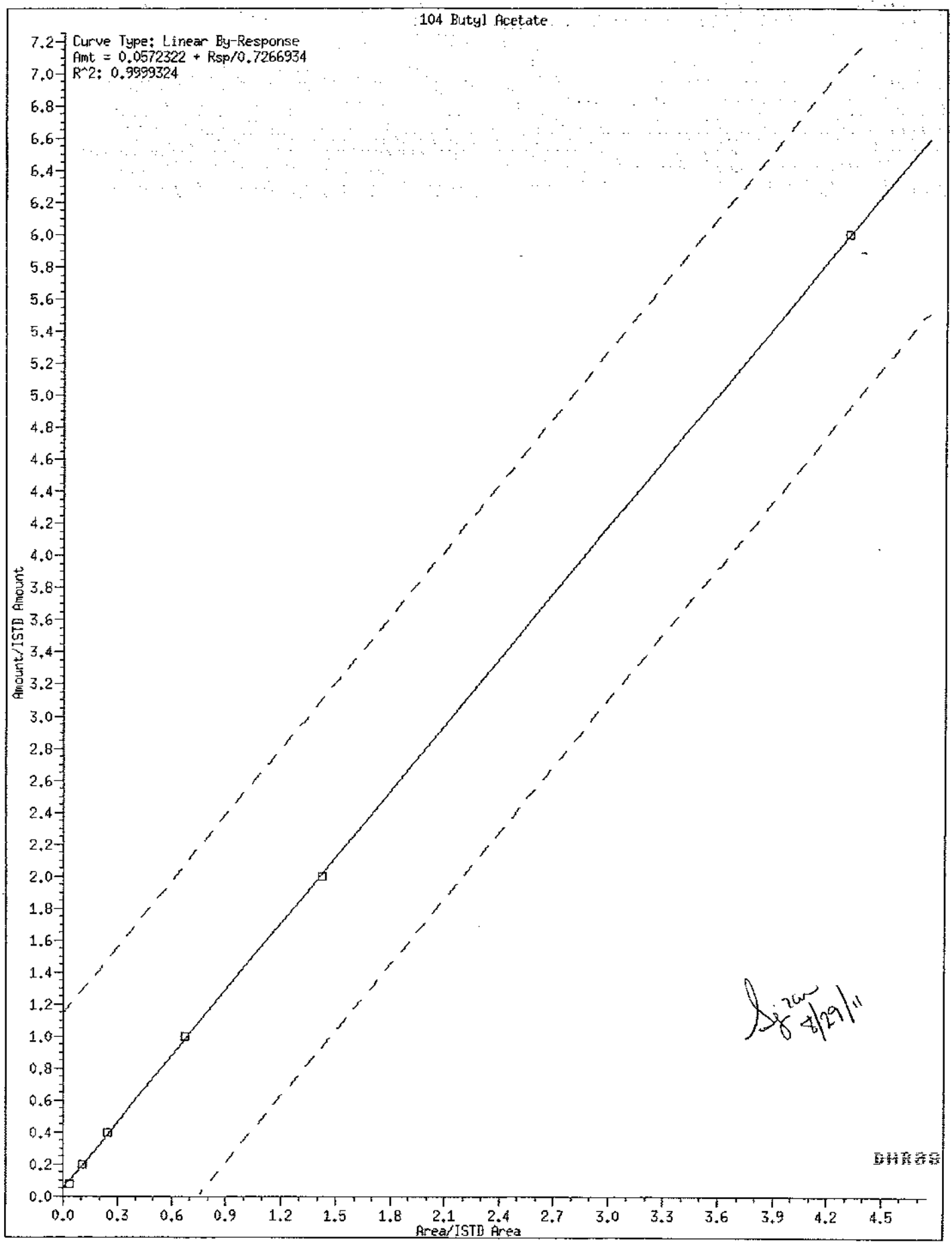

41 Vinyl Acetate
Curve Type: Quadratic By-Response
Amt = 0.0531391 + 2.368246*Rsp + -0.06654809*Rsp^2
R^2: 0.9999098
Amount/ISTD Amount
Area/ISTD Area
8/29/11

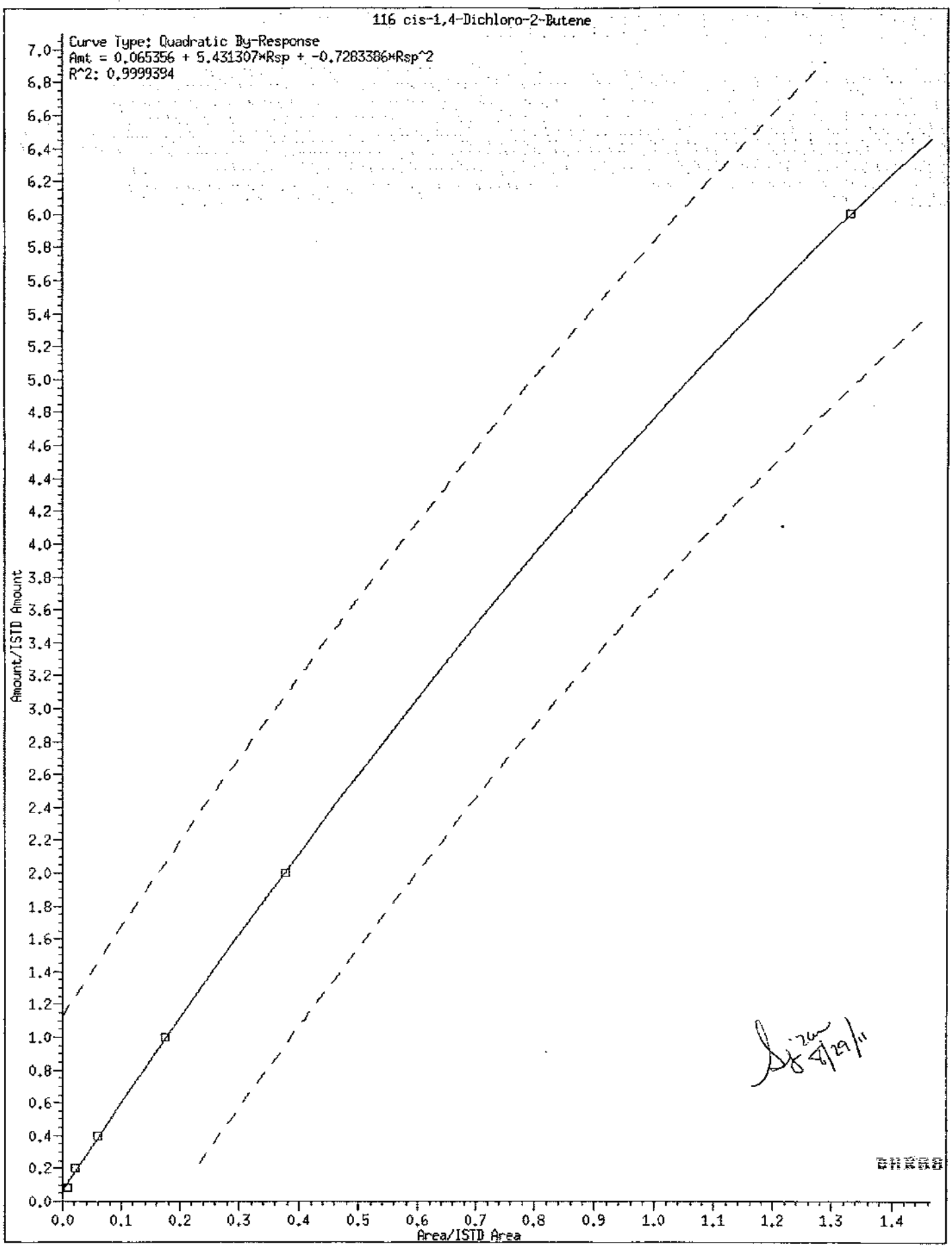
DHR88 0125


72 Isopropyl Acetate
Curve Type: Quadratic By-Response
Amt = 0.0397365 + 1.787868*Rsp + -0.04181659*Rsp^2
R^2: 0.9999781
Amount/ISTD Amount
Area/ISTD Area
8/29/11


83 n-Propyl Acetate
Curve Type: Quadratic By-Response
Amt = 0.0559419 + 7.333633*Rsp + -0.8121108*Rsp^2
R^2: 0.9999475
Amount/ISTD Amount
Area/ISTD Area (x10^-1)
0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0 2.2 2.4 2.6 2.8 3.0 3.2 3.4 3.6 3.8 4.0 4.2 4.4 4.6 4.8 5.0 5.2 5.4 5.6 5.8 6.0 6.2 6.4 6.6 6.8 7.0
0.00 0.50 1.00 1.50 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 6.00 6.50 7.00 7.50 8.00 8.50 9.00 9.50
8/29/11


101 3,4-Dichloro-1-Butene
Curve Type: Quadratic By-Response
Amt = 0.0572351 + 2.204908*Rsp + -0.07036848*Rsp^2
R^2: 0.9999309
Amount/ISTD Amount
Area/ISTD Area
0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0 2.2 2.4 2.6 2.8 3.0 3.2
0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0 2.2 2.4 2.6 2.8 3.0 3.2 3.4 3.6 3.8 4.0 4.2 4.4 4.6 4.8 5.0 5.2 5.4 5.6 5.8 6.0 6.2 6.4 6.6 6.8 7.0
8/29/11
DH868 8120


104 Butyl Acetate
Curve Type: Linear By-Response
Amt = 0.0572322 + Rsp/0.7266934
R^2: 0.9999324
Amount/ISTD Amount
Area/ISTD Area
8/29/11


116 cis-1,4-Dichloro-2-Butene
Curve Type: Quadratic By-Response
Amt = 0.065356 + 5.431307*Rsp + -0.7283386*Rsp^2
R^2: 0.9999394
Amount/ISTD Amount
Area/ISTD Area
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2
2.4
2.6
2.8
3.0
3.2
3.4
3.6
3.8
4.0
4.2
4.4
4.6
4.8
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5.2
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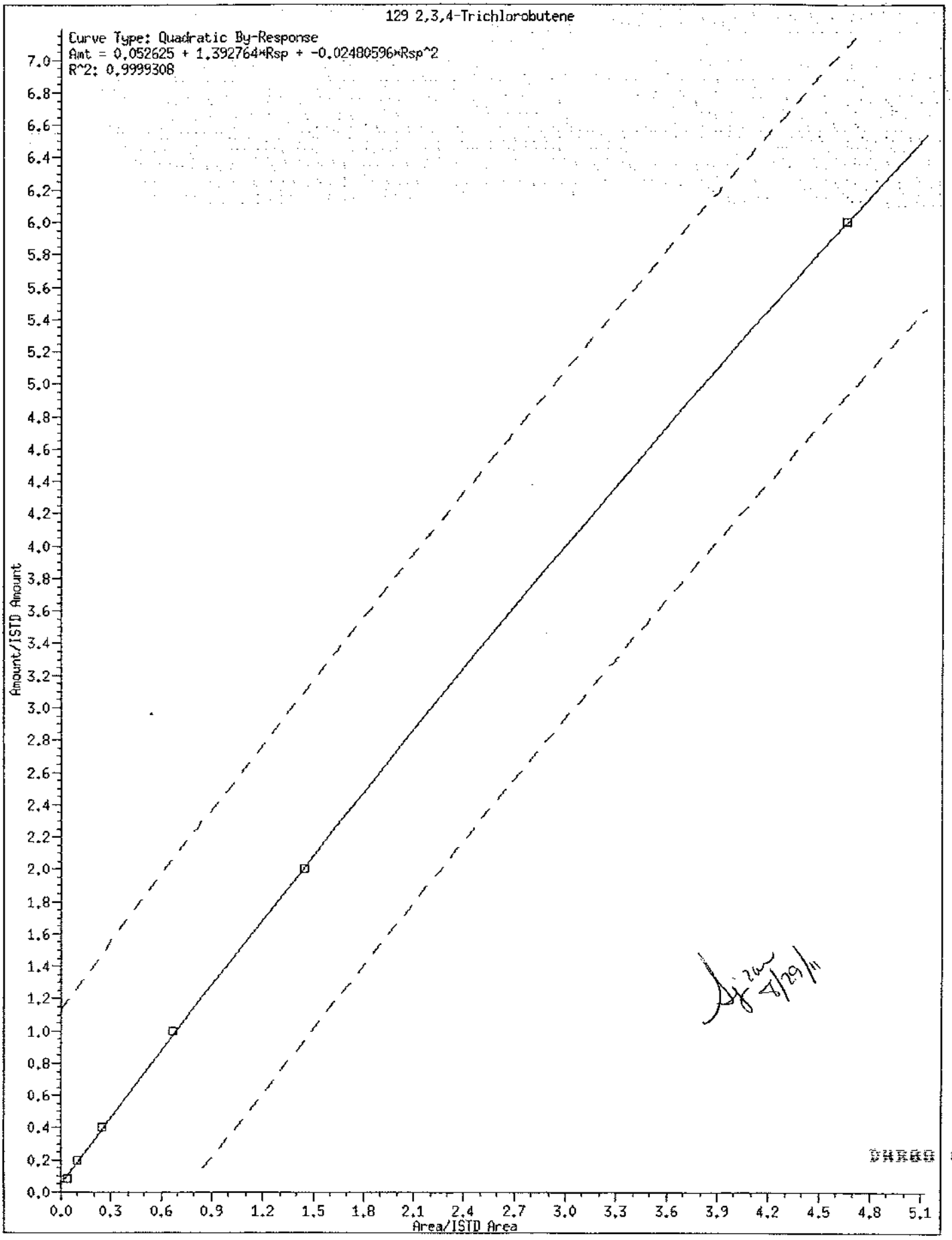
5.6
5.8
6.0
6.2
6.4
6.6
6.8
7.0

4/29/11


129 2,3,4-Trichlorobutene
Curve Type: Quadratic By-Response
Amt = 0.052625 + 1.392764*Rsp + -0.02480596*Rsp^2
R^2: 0.9999308
Amount/ISTD Amount
Area/ISTD Area

DAR09 0131

Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem2/HP09685.i/11aug29a.b/ag29i01.d VSTD300
/chem2/HP09685.i/11aug29a.b/ag29i02.d VSTD100
/chem2/HP09685.i/11aug29a.b/ag29i03.d VSTD050
/chem2/HP09685.i/11aug29a.b/ag29i04.d VSTD020
/chem2/HP09685.i/11aug29a.b/ag29i05.d VSTD010
/chem2/HP09685.i/11aug29a.b/ag29i06.d VSTD004

Area Summary

File ID:

Internal Standard Name	ag29i01.d	ag29i02.d	ag29i03.d	ag29i04.d	ag29i05.d	ag29i06.d	Avg. Area	%RSD	In Spec
t-Butyl Alcohol-d10	175575	153869	162392	154002	147625	131964	154238	9	Yes
Fluorobenzene	1084492	1060768	1052083	1034536	1020344	1007896	1043353	3	Yes
Chlorobenzene-d5	829237	808185	803706	791287	780209	775922	798091	2	Yes
1,4-Dichlorobenzene-d4	474788	451507	448711	444550	433345	432409	447552	3	Yes

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

File ID:

Internal Standard Name	ag29i01.d	ag29i02.d	ag29i03.d	ag29i04.d	ag29i05.d	ag29i06.d	Avg. RT
t-Butyl Alcohol-d10	3.958	3.951	3.952	3.958	3.952	3.939	3.952
Fluorobenzene	7.413	7.413	7.413	7.413	7.413	7.407	7.412
Chlorobenzene-d5	10.954	10.954	10.954	10.954	10.954	10.954	10.954
1,4-Dichlorobenzene-d4	12.852	12.852	12.852	12.852	12.852	12.852	12.852

* indicates the retention time is greater than 30 seconds from the average RT.

Report generated on 08/29/2011 at 21:32.

INITIAL CALIBRATION VERIFICATION

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09685 ICV Date: 08/29/11 Time: 22:01

Lab File ID: ag29103.d Init. Calib. Date(s): 08/29/11 08/29/11

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: DB-624 ID: .25

COMPOUND	$\overline{RRF}$	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT
Chlorotrifluoroethene	0.3630	0.2191	12.07	20	-40
Freon 133a	0.6496	0.5472	16.85	20	-16
Ethyl Ether	0.2765	0.2251	16.28	20	-19
Acetonitrile	1.4018	1.2635	135.20	150	-10
Vinyl Acetate	0.3701	0.4936	116.32	100	16
Ethyl Acetate	0.2936	0.2931	19.97	20	0
Isopropyl Acetate	0.5066	0.4897	19.42	20	-3
n-Propyl Acetate	0.1181	0.1142	19.46	20	-3
Epichlorohydrin	0.8640	0.7623	35.29	40	-12
3,4-Dichloro-1-Butene	0.3915	0.3756	19.34	20	-3
Butyl Acetate	0.6064	0.5821	18.88	20	-6
cis-1,4-Dichloro-2-Butene	0.1580	0.1673	47.67	50	-5
2,3,4-Trichlorobutene	0.6266	0.6010	19.30	20	-3

Average %Drift 11

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

BURGS 8133

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09685 Calibration Date: 12/20/11 Time: 10:49

Lab File ID: ad20c01.d Init. Calib. Date(s): 08/05/11 08/05/11

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: DB-624 ID: .25

	COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	Dichlorodifluoromethane	0.4110	0.4443	54.05	50	8	
#	Chloromethane	0.3874	0.3299	42.58	50	-15	#
*	Vinyl Chloride	0.3949	0.3323	42.07	50	-16	*
	Bromomethane	0.2660	0.2603	48.93	50	-2	
	Chloroethane	0.2070	0.1883	45.49	50	-9	
	Trichlorofluoromethane	0.4712	0.5292	56.15	50	12	
	Ethanol	0.1185	0.1083	2285.26	2500	-9	
	Acrolein	1.8504	1.8416	497.61	500	0	
*	1,1-Dichloroethene	0.2531	0.2393	47.26	50	-5	*
	Freon 113	0.2691	0.2603	48.36	50	-3	
	Acetone	0.0295	0.0354	120.07	100	20	
	Methyl Iodide	0.4834	0.5088	52.62	50	5	
	2-Propanol	0.7225	0.6628	229.37	250	-8	
	Carbon Disulfide	0.8526	0.7607	44.61	50	-11	
	Allyl Chloride	0.3672	0.1587	21.61	50	-57	
	Methyl Acetate	0.1971	0.1458	36.98	50	-26	
	Methylene Chloride	0.3125	0.2721	43.54	50	-13	
	t-Butyl Alcohol	1.3104	1.3186	251.55	250	1	
	Acrylonitrile	0.1040	0.1209	58.12	50	16	
	trans-1,2-Dichloroethene	0.2928	0.2722	46.48	50	-7	
	Methyl Tertiary Butyl Ether	0.8414	0.8664	51.49	50	3	
	n-Hexane	0.3825	0.3187	41.66	50	-17	
#	1,1-Dichloroethane	0.5059	0.4739	46.84	50	-6	#
	2-Chloro-1,3-Butadiene	0.4086	0.4327	52.95	50	6	
	di-Isopropyl Ether	0.8368	0.7311	43.68	50	-13	
	Ethyl t-Butyl Ether	0.8574	0.8158	47.57	50	-5	
	cis-1,2-Dichloroethene	0.3264	0.2985	45.74	50	-9	
	1,2-Dichloroethene (total)	0.3096	0.2854	92.22	100	-8	
	2,2-Dichloropropane	0.4370	0.4392	50.25	50	0	
	2-Butanone	0.1426	0.1812	127.07	100	27	
	Propionitrile	1.4327	1.2346	215.42	250	-14	
	Methacrylonitrile	0.1362	0.1248	114.48	125	-8	
	Bromochloromethane	0.1615	0.1355	41.93	50	-16	
	Tetrahydrofuran	1.3454	1.4441	107.33	100	7	
*	Chloroform	0.5165	0.5213	50.47	50	1	*
	1,1,1-Trichloroethane	0.5026	0.5121	50.94	50	2	

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)

Maximum %Drift for CCC(*)=20%

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09685 Calibration Date: 12/20/11 Time: 10:49

Lab File ID: ad20c01.d Init. Calib. Date(s): 08/05/11 08/05/11

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: DB-624 ID: .25

	COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	Cyclohexane	0.4644	0.3896	41.95	50	-16	
	Cyclohexane(mz84)	0.4290	0.3780	44.06	50	-12	
	Cyclohexane(mz69)	0.1509	0.1283	42.51	50	-15	
	1,1-Dichloropropene	0.4021	0.3839	47.74	50	-5	
	Carbon Tetrachloride	0.3945	0.4467	56.61	50	13	
	Benzene	1.1791	1.0516	44.59	50	-11	
	Isobutyl Alcohol	0.3996	0.4028	629.96	625	1	
	1,2-Dichloroethane	0.4148	0.4810	57.97	50	16	
	1,2-Dichloroethane(mz98)	0.0373	0.0353	47.34	50	-5	
	t-Amyl Methyl Ether	0.7922	0.7710	48.67	50	-3	
	n-Heptane	0.3874	0.3306	42.68	50	-15	
	n-Butanol	0.3685	0.3163	1072.67	1250	-14	
	Trichloroethene	0.3184	0.3047	47.85	50	-4	
	Methylcyclohexane	0.5114	0.3006	29.39	50	-41	
*	1,2-Dichloropropane	0.3121	0.2573	41.23	50	-18	*
	Dibromomethane	0.2018	0.1960	48.56	50	-3	
	1,4-Dioxane	0.1425	0.1342	588.65	625	-6	
	Methyl Methacrylate	0.2318	0.2243	48.37	50	-3	
	Bromodichloromethane	0.3832	0.3943	51.45	50	3	
	2-Nitropropane	2.4963	3.8622	124.18	100	24	
	cis-1,3-Dichloropropene	0.4751	0.4424	46.56	50	-7	
	4-Methyl-2-Pentanone	0.3146	0.4175	132.71	100	33	
*	Toluene	0.9748	0.9213	47.26	50	-5	*
	trans-1,3-Dichloropropene	0.5822	0.5852	50.26	50	1	
	Ethyl Methacrylate	0.5060	0.5077	50.16	50	0	
	1,1,2-Trichloroethane	0.3524	0.3404	48.29	50	-3	
	Tetrachloroethene	0.4370	0.4992	57.11	50	14	
	1,3-Dichloropropane	0.6061	0.5741	47.36	50	-5	
	2-Hexanone	0.3022	0.4121	120.46	100	20	
	Dibromochloromethane	0.3846	0.4339	56.41	50	13	
	1,2-Dibromoethane	0.3638	0.3824	52.56	50	5	
#	Chlorobenzene	1.1280	1.1245	49.85	50	0	#
	1,1,1,2-Tetrachloroethane	0.3829	0.4273	55.79	50	12	
*	Ethylbenzene	1.8321	1.8532	50.57	50	1	*
	m+p-Xylene	0.7232	0.7321	101.22	100	1	
	Xylene (Total)	0.7229	0.7269	150.83	150	1	

DHR66 #135

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09685 Calibration Date: 12/20/11 Time: 10:49

Lab File ID: ad20c01.d Init. Calib. Date(s): 08/05/11 08/05/11

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: DB-624 ID: .25

	COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	o-Xylene	0.7223	0.7167	49.61	50	-1	
	Styrene	1.1422	1.2059	52.79	50	6	
#	Bromoform	0.2758	0.3324	60.26	50	21	#
	Isopropylbenzene	1.7926	1.9502	54.39	50	9	
	Cyclohexanone	0.4246	0.3952	581.66	625	-7	
	Bromobenzene	0.8523	0.8776	51.48	50	3	
#	1,1,2,2-Tetrachloroethane	0.8928	0.7588	42.50	50	-15	#
	1,2,3-Trichloropropane	0.2792	0.2744	49.14	50	-2	
	trans-1,4-Dichloro-2-Butene	0.2714	0.2886	132.92	125	6	
	n-Propylbenzene	3.6752	3.4877	47.45	50	-5	
	2-Chlorotoluene	0.8028	0.7805	48.61	50	-3	
	1,3,5-Trimethylbenzene	2.6491	2.6762	50.51	50	1	
	4-Chlorotoluene	0.8303	0.8104	48.80	50	-2	
	tert-Butylbenzene	0.6300	0.6336	50.28	50	1	
	Pentachloroethane	0.5238	0.5684	54.26	50	9	
	1,2,4-Trimethylbenzene	2.8366	2.8129	49.58	50	-1	
	sec-Butylbenzene	3.3751	3.3634	49.83	50	0	
	1,3-Dichlorobenzene	1.6330	1.6632	50.92	50	2	
	p-Isopropyltoluene	3.0305	3.1688	52.28	50	5	
	1,4-Dichlorobenzene	1.6819	1.6997	50.53	50	1	
	1,2,3-Trimethylbenzene	2.8081	2.7985	49.83	50	0	
	Benzyl Chloride	0.4114	0.4075	49.53	50	-1	
	1,2-Dichlorobenzene	1.6067	1.6190	50.38	50	1	
	n-Butylbenzene	1.5719	1.4535	46.23	50	-8	
	1,3-Diethylbenzene	1.7519	1.7876	51.02	50	2	
	1,4-Diethylbenzene	1.8399	1.8814	51.13	50	2	
	1,2-Diethylbenzene	1.5340	1.5627	50.94	50	2	
	1,2-Dibromo-3-Chloropropane	0.1877	0.2106	56.11	50	12	
	1,3,5-Trichlorobenzene	1.3335	1.5011	56.28	50	13	
	1,2,4-Trichlorobenzene	1.2983	1.4059	54.14	50	8	
	Hexachlorobutadiene	0.6827	0.8281	60.65	50	21	
	Naphthalene	3.3209	3.5561	53.54	50	7	
	1,2,3-Trichlorobenzene	1.2343	1.4064	56.97	50	14	
	2-Methylnaphthalene	2.1595	2.5175	58.29	50	17	
	Dibromofluoromethane	0.2428	0.2569	52.89	50	6	

DHR88 0136

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09685 Calibration Date: 12/20/11 Time: 10:49

Lab File ID: ad20c01.d Init. Calib. Date(s): 08/05/11 08/05/11

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: DB-624 ID: .25

COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT
Dibromofluoromethane(mz111)	0.2484	0.2618	52.69	50	5
1,2-Dichloroethane-d4	0.0575	0.0580	50.45	50	1
1,2-Dichloroethane-d4(mz65)	0.2834	0.3476	61.33	50	23
1,2-Dichloroethane-d4(mz104)	0.0364	0.0373	51.32	50	3
Toluene-d8	1.2693	1.2867	50.69	50	1
Toluene-d8(mz100)	0.8253	0.8328	50.45	50	1
4-Bromofluorobenzene	0.5117	0.5024	49.09	50	-2
4-Bromofluorobenzene(mz174)	0.4310	0.4877	56.58	50	13

Average %Drift 9

DHR88 8137

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

Lancaster Laboratories
Continuing Calibration Internal Standard Check

Initial Calibration Standards:

/chem2/HP09685.i/11aug05a.b/ag05i06.d
/chem2/HP09685.i/11aug05a.b/ag05i05.d
/chem2/HP09685.i/11aug05a.b/ag05i04.d
/chem2/HP09685.i/11aug05a.b/ag05i03.d
/chem2/HP09685.i/11aug05a.b/ag05i02.d
/chem2/HP09685.i/11aug05a.b/ag05i01.d

File /chem2/HP09685.i/11aug05a.b/ag05i03.d is Mid Level Calibration Standard used for comparison.

Current Continuing Calibration Standard:

/chem2/HP09685.i/11dec20a.b/ad20c01.d

RT Summary

Internal Standard Name	File ID: ad20c01.d	ICAL RT	In Spec
t-Butyl Alcohol-d10	3.957	3.958	Yes
Fluorobenzene	7.413	7.413	Yes
Chlorobenzene-d5	10.960	10.954	Yes
1,4-Dichlorobenzene-d4	12.858	12.852	Yes

A "No" indicates the retention time is greater than 30 seconds from the referenced ICAL standard.

Area Summary

Internal Standard Name	File ID: ad20c01.d	ICAL Area	Low Limit	High Limit	In Spec
t-Butyl Alcohol-d10	166198	256942	128471	513884	Yes
Fluorobenzene	966256	1477258	738629	2954516	Yes
Chlorobenzene-d5	749016	1179094	589547	2358188	Yes
1,4-Dichlorobenzene-d4	475444	695398	347699	1390796	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

[illegible] 0138

Comments: _____

report generated on 12/20/2011 at 11:19

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09685 Calibration Date: 12/20/11 Time: 11:16

Lab File ID: ad20c02.d Init. Calib. Date(s): 08/29/11 08/29/11

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: DB-624 ID: .25

COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT
Ethyl Ether	0.2765	0.1989	35.96	50	-28
Acetonitrile	1.4018	0.9169	163.52	250	-35
Vinyl Acetate	0.3701	0.3194	43.15	50	-14
Ethyl Acetate	0.2936	0.2581	43.95	50	-12

Average %Drift 22

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)

Maximum %Drift for CCC(*)=20%

FORM VII VOA

Lancaster Laboratories

Continuing Calibration Internal Standard Check

Initial Calibration Standards:

/chem2/HP09685.i/11aug29a.b/ag29i06.d
/chem2/HP09685.i/11aug29a.b/ag29i05.d
/chem2/HP09685.i/11aug29a.b/ag29i04.d
/chem2/HP09685.i/11aug29a.b/ag29i03.d
/chem2/HP09685.i/11aug29a.b/ag29i02.d
/chem2/HP09685.i/11aug29a.b/ag29i01.d

File /chem2/HP09685.i/11aug29a.b/ag29i03.d is Mid Level Calibration Standard used for comparison.

Current Continuing Calibration Standard:

/chem2/HP09685.i/11dec20a.b/ad20c02.d

RT Summary

Internal Standard Name	File ID: ad20c02.d	ICAL RT	In Spec
t-Butyl Alcohol-d10	3.958	3.952	Yes
Fluorobenzene	7.413	7.413	Yes
Chlorobenzene-d5	10.960	10.954	Yes
1,4-Dichlorobenzene-d4	12.858	12.852	Yes

A "No" indicates the retention time is greater than 30 seconds from the referenced ICAL standard.

Area Summary

Internal Standard Name	File ID: ad20c02.d	ICAL Area	Low Limit	High Limit	In Spec
t-Butyl Alcohol-d10	156020	162392	81196	324784	Yes
Fluorobenzene	973143	1052083	526042	2104166	Yes
Chlorobenzene-d5	731041	803706	401853	1607412	Yes
1,4-Dichlorobenzene-d4	444092	448711	224356	897422	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

DHR68 8141

Comments: _____

report generated on 12/20/2011 at 11:40

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09685 Calibration Date: 12/22/11 Time: 10:18

Lab File ID: ad22c05.d Init. Calib. Date(s): 08/05/11 08/05/11

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: DB-624 ID: .25

	COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	Dichlorodifluoromethane	0.4110	0.4524	55.03	50	10	
#	Chloromethane	0.3874	0.3588	46.31	50	-7	#
*	Vinyl Chloride	0.3949	0.3447	43.64	50	-13	*
	Bromomethane	0.2660	0.2449	46.03	50	-8	
	Chloroethane	0.2070	0.1922	46.42	50	-7	
	Trichlorofluoromethane	0.4712	0.5086	53.96	50	8	
	Ethanol	0.1185	0.1165	2457.34	2500	-2	
	Freon 123a	0.3390	0.2958	43.62	50	-13	
	Acrolein	1.8504	1.9134	517.02	500	3	
*	1,1-Dichloroethene	0.2531	0.2337	46.17	50	-8	*
	Dichlorofluoromethane	0.5504	0.5077	46.12	50	-8	
	Freon 113	0.2691	0.2688	49.93	50	0	
	Acetone	0.0295	0.0314	106.56	100	7	
	Methyl Iodide	0.4834	0.4509	46.63	50	-7	
	2-Propanol	0.7225	0.7856	271.85	250	9	
	Carbon Disulfide	0.8526	0.7845	46.01	50	-8	
	Allyl Chloride	0.3672	0.3935	53.58	50	7	
	Methyl Acetate	0.1971	0.2188	55.50	50	11	
	Methylene Chloride	0.3125	0.2819	45.11	50	-10	
	t-Butyl Alcohol	1.3104	1.5091	287.89	250	15	
	Acrylonitrile	0.1040	0.1123	53.96	50	8	
	trans-1,2-Dichloroethene	0.2928	0.2733	46.67	50	-7	
	Methyl Tertiary Butyl Ether	0.8414	0.8530	50.69	50	1	
	n-Hexane	0.3825	0.3930	51.38	50	3	
#	1,1-Dichloroethane	0.5059	0.5196	51.35	50	3	#
	2-Chloro-1,3-Butadiene	0.4086	0.4765	58.30	50	17	
	di-Isopropyl Ether	0.8368	0.9121	54.50	50	9	
	Ethyl t-Butyl Ether	0.8574	0.8040	46.88	50	-6	
	cis-1,2-Dichloroethene	0.3264	0.3057	46.83	50	-6	
	1,2-Dichloroethene (total)	0.3096	0.2895	93.50	100	-6	
	2,2-Dichloropropane	0.4370	0.4196	48.00	50	-4	
	2-Butanone	0.1426	0.1578	110.73	100	11	
	Propionitrile	1.4327	1.4726	256.95	250	3	
	Methacrylonitrile	0.1362	0.1341	123.03	125	-2	
	Bromochloromethane	0.1615	0.1484	45.94	50	-8	
	Tetrahydrofuran	1.3454	1.2635	93.91	100	-6	

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

DHR88 0143

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09685 Calibration Date: 12/22/11 Time: 10:18

Lab File ID: ad22c05.d Init. Calib. Date(s): 08/05/11 08/05/11

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: DB-624 ID: .25

			ACTUAL	TRUE	%	
COMPOUND	RRF	RRF50	CONC.	CONC.	DRIFT	
* Chloroform	0.5165	0.5338	51.67	50	3	*
1,1,1-Trichloroethane	0.5026	0.4916	48.90	50	-2	
Cyclohexane	0.4644	0.4756	51.20	50	2	
Cyclohexane(mz84)	0.4290	0.4196	48.90	50	-2	
Cyclohexane(mz69)	0.1509	0.1466	48.57	50	-3	
1,1-Dichloropropene	0.4021	0.4106	51.05	50	2	
Carbon Tetrachloride	0.3945	0.4173	52.88	50	6	
Benzene	1.1791	1.1417	48.42	50	-3	
Isobutyl Alcohol	0.3996	0.4552	711.92	625	14	
1,2-Dichloroethane	0.4148	0.4808	57.95	50	16	
1,2-Dichloroethane(mz98)	0.0373	0.0357	47.85	50	-4	
t-Amyl Methyl Ether	0.7922	0.6935	43.77	50	-12	
n-Heptane	0.3874	0.4437	57.27	50	15	
n-Butanol	0.3685	0.3639	1234.28	1250	-1	
Trichloroethene	0.3184	0.3056	47.99	50	-4	
Methylcyclohexane	0.5114	0.5114	50.01	50	0	
* 1,2-Dichloropropane	0.3121	0.2985	47.83	50	-4	*
Dibromomethane	0.2018	0.1976	48.96	50	-2	
1,4-Dioxane	0.1425	0.1247	546.99	625	-12	
Methyl Methacrylate	0.2318	0.2367	51.05	50	2	
Bromodichloromethane	0.3832	0.4042	52.73	50	5	
2-Nitropropane	2.4963	3.0478	99.86	100	0	
cis-1,3-Dichloropropene	0.4751	0.4732	49.80	50	0	
4-Methyl-2-Pentanone	0.3146	0.3487	110.84	100	11	
* Toluene	0.9748	0.9864	50.60	50	1	*
trans-1,3-Dichloropropene	0.5822	0.6174	53.02	50	6	
Ethyl Methacrylate	0.5060	0.5760	56.91	50	14	
1,1,2-Trichloroethane	0.3524	0.3579	50.78	50	2	
Tetrachloroethene	0.4370	0.4563	52.21	50	4	
1,3-Dichloropropane	0.6061	0.6279	51.80	50	4	
2-Hexanone	0.3022	0.3283	96.74	100	-3	
Dibromochloromethane	0.3846	0.4129	53.68	50	7	
1,2-Dibromoethane	0.3638	0.3826	52.59	50	5	
# Chlorobenzene	1.1280	1.1405	50.56	50	1	#
1,1,1,2-Tetrachloroethane	0.3829	0.4130	53.93	50	8	
* Ethylbenzene	1.8321	1.9557	53.37	50	7	*

DH808 0144

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09685 Calibration Date: 12/22/11 Time: 10:18

Lab File ID: ad22c05.d Init. Calib. Date(s): 08/05/11 08/05/11

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: DB-624 ID: .25

	COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	m+p-Xylene	0.7232	0.7503	103.74	100	4	
	Xylene (Total)	0.7229	0.7485	155.30	150	4	
	o-Xylene	0.7223	0.7449	51.56	50	3	
	Styrene	1.1422	1.2630	55.29	50	11	
#	Bromoform	0.2758	0.3042	55.15	50	10	#
	Isopropylbenzene	1.7926	1.9773	55.15	50	10	
	Cyclohexanone	0.4246	0.3378	497.14	625	-20	
	Bromobenzene	0.8523	0.8735	51.24	50	2	
#	1,1,2,2-Tetrachloroethane	0.8928	0.8877	49.71	50	-1	#
	1,2,3-Trichloropropane	0.2792	0.2770	49.60	50	-1	
	trans-1,4-Dichloro-2-Butene	0.2714	0.3301	152.05	125	22	
	n-Propylbenzene	3.6752	3.9208	53.34	50	7	
	2-Chlorotoluene	0.8028	0.8073	50.28	50	1	
	1,3,5-Trimethylbenzene	2.6491	2.8645	54.06	50	8	
	4-Chlorotoluene	0.8303	0.8484	51.09	50	2	
	tert-Butylbenzene	0.6300	0.6609	52.45	50	5	
	Pentachloroethane	0.5238	0.5484	52.35	50	5	
	1,2,4-Trimethylbenzene	2.8366	2.9872	52.66	50	5	
	sec-Butylbenzene	3.3751	3.6632	54.27	50	9	
	1,3-Dichlorobenzene	1.6330	1.6929	51.83	50	4	
	p-Isopropyltoluene	3.0305	3.2744	54.02	50	8	
	1,4-Dichlorobenzene	1.6819	1.7143	50.96	50	2	
	1,2,3-Trimethylbenzene	2.8081	2.9390	52.33	50	5	
	Benzyl Chloride	0.4114	0.4089	49.71	50	-1	
	1,2-Dichlorobenzene	1.6067	1.6338	50.84	50	2	
	n-Butylbenzene	1.5719	1.6550	52.64	50	5	
	1,3-Diethylbenzene	1.7519	1.8577	53.02	50	6	
	1,4-Diethylbenzene	1.8399	1.9574	53.19	50	6	
	1,2-Diethylbenzene	1.5340	1.5886	51.78	50	4	
	1,2-Dibromo-3-Chloropropane	0.1877	0.2168	57.76	50	16	
	1,3,5-Trichlorobenzene	1.3335	1.4554	54.57	50	9	
	1,2,4-Trichlorobenzene	1.2983	1.3527	52.09	50	4	
	Hexachlorobutadiene	0.6827	0.7437	54.46	50	9	
	Naphthalene	3.3209	3.5609	53.61	50	7	
	1,2,3-Trichlorobenzene	1.2343	1.3325	53.97	50	8	
	2-Methylnaphthalene	2.1595	2.1576	49.95	50	0	

DHR88 #145

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09685 Calibration Date: 12/22/11 Time: 10:18

Lab File ID: ad22c05.d Init. Calib. Date(s): 08/05/11 08/05/11

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: DB-624 ID: .25

COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT
Dibromofluoromethane	0.2428	0.2458	50.62	50	1
Dibromofluoromethane(mz111)	0.2484	0.2513	50.57	50	1
1,2-Dichloroethane-d4	0.0575	0.0559	48.58	50	-3
1,2-Dichloroethane-d4(mz65)	0.2834	0.3395	59.90	50	20
1,2-Dichloroethane-d4(mz104)	0.0364	0.0356	48.98	50	-2
Toluene-d8	1.2693	1.3092	51.57	50	3
Toluene-d8(mz100)	0.8253	0.8517	51.60	50	3
4-Bromofluorobenzene	0.5117	0.5116	49.98	50	0
4-Bromofluorobenzene(mz174)	0.4310	0.4545	52.73	50	5

Average %Drift 6

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

DHR88 8146

Lancaster Laboratories

Continuing Calibration Internal Standard Check

Initial Calibration Standards:

/chem2/HP09685.i/11aug05a.b/ag05i06.d
/chem2/HP09685.i/11aug05a.b/ag05i05.d
/chem2/HP09685.i/11aug05a.b/ag05i04.d
/chem2/HP09685.i/11aug05a.b/ag05i03.d
/chem2/HP09685.i/11aug05a.b/ag05i02.d
/chem2/HP09685.i/11aug05a.b/ag05i01.d

File /chem2/HP09685.i/11aug05a.b/ag05i03.d is Mid Level Calibration Standard used for comparison.

Current Continuing Calibration Standard:

/chem2/HP09685.i/11dec22b.b/ad22c05.d

RT Summary

Internal Standard Name	File ID: ad22c05.d	ICAL RT	In Spec
t-Butyl Alcohol-d10	3.952	3.958	Yes
Fluorobenzene	7.413	7.413	Yes
Chlorobenzene-d5	10.960	10.954	Yes
1,4-Dichlorobenzene-d4	12.858	12.852	Yes

A "No" indicates the retention time is greater than 30 seconds from the referenced ICAL standard.

Area Summary

Internal Standard Name	File ID: ad22c05.d	ICAL Area	Low Limit	High Limit	In Spec
t-Butyl Alcohol-d10	237599	256942	128471	513884	Yes
Fluorobenzene	1503553	1477258	738629	2954516	Yes
Chlorobenzene-d5	1135838	1179094	589547	2358188	Yes
1,4-Dichlorobenzene-d4	680401	695398	347699	1390796	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

BHR08 3147

Comments: _____

report generated on 12/22/2011 at 10:39

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09685 Calibration Date: 12/22/11 Time: 10:40

Lab File ID: ad22c06.d Init. Calib. Date(s): 08/29/11 08/29/11

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: DB-624 ID: .25

COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT
Vinyl Acetate	0.3701	0.3897	48.30	50	-3

Average %Drift 3

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

Lancaster Laboratories

Continuing Calibration Internal Standard Check

Initial Calibration Standards:

/chem2/HP09685.i/11aug29a.b/ag29i06.d
/chem2/HP09685.i/11aug29a.b/ag29i05.d
/chem2/HP09685.i/11aug29a.b/ag29i04.d
/chem2/HP09685.i/11aug29a.b/ag29i03.d
/chem2/HP09685.i/11aug29a.b/ag29i02.d
/chem2/HP09685.i/11aug29a.b/ag29i01.d

File /chem2/HP09685.i/11aug29a.b/ag29i03.d is Mid Level Calibration Standard used for comparison.

Current Continuing Calibration Standard:

/chem2/HP09685.i/11dec22b.b/ad22c06.d

RT Summary

Internal Standard Name	File ID: ad22c06.d	ICAL RT	In Spec
t-Butyl Alcohol-d10	3.970	3.952	Yes
Fluorobenzene	7.419	7.413	Yes
Chlorobenzene-d5	10.960	10.954	Yes
1,4-Dichlorobenzene-d4	12.858	12.852	Yes

A "No" indicates the retention time is greater than 30 seconds from the referenced ICAL standard.

Area Summary

Internal Standard Name	File ID: ad22c06.d	ICAL Area	Low Limit	High Limit	In Spec
t-Butyl Alcohol-d10	212105	162392	81196	324784	Yes
Fluorobenzene	1518977	1052083	526042	2104166	Yes
Chlorobenzene-d5	1123494	803706	401853	1607412	Yes
1,4-Dichlorobenzene-d4	650432	448711	224356	897422	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

DH888 8158

Comments: _____

report generated on 12/22/2011 at 11:05

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_DHR08___

Lab File ID (Standard): ad20c01.d Date Analyzed: 12/20/11

Instrument ID: HP09685 Time Analyzed: 10:49

Matrix: (soil/water) SOIL Level: (low/med) LOW Column: (pack/cap) CAP

		IS1(FBZ)		IS2(CBZ)		IS3(DCB)		IS4(TBA)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	966256	7.413	749016	10.960	475444	12.858	166198	3.957
	UPPER LIMIT	1932512	7.913	1498032	11.460	950888	13.358	332396	4.457
	LOWER LIMIT	483128	6.913	374508	10.460	237722	12.358	83099	3.457
	LAB SAMPLE ID								
01	VBLKA77	896046	7.413	688884	10.960	416959	12.858	118485	3.952
02	LCSA77	919551	7.413	708187	10.960	447442	12.858	134101	3.958
03	LCS1A77	942667	7.407	721984	10.960	433785	12.858	133144	3.958
04	6497123	705179	7.401	557427	10.954	311354	12.858	144974	3.933
05	6500584	951666	7.413	732682	10.960	449034	12.858		
06	6500585	956077	7.419	744283	10.960	451338	12.858		
07	6500586	934785	7.413	719499	10.960	443182	12.858		
08	6499034	841605	7.419	647208	10.960	388744	12.858	206025	3.964
09	6499035	879721	7.413	674246	10.960	413806	12.858	204813	3.952
10	6499036MS	920896	7.413	704464	10.960	415825	12.858	172595	3.964
11	6499037MSD	973224	7.413	737372	10.960	445522	12.858	185173	3.964
12	6499036MS1	983729	7.413	737046	10.960	437543	12.858	190310	3.958
13	6499037MSD1	965843	7.413	728851	10.960	432672	12.858	186113	3.970
14	6499039	829398	7.419	629615	10.960	383634	12.858	178716	3.964
15	6499040	908800	7.419	688058	10.960	400776	12.858	189797	3.964
16	6499041	899635	7.413	677387	10.960	401654	12.858	156792	3.952
17	6499042	902644	7.419	680000	10.960	399866	12.858	170639	3.964
18	6499043	873827	7.413	661889	10.960	399367	12.858	177636	3.964
19	6499044	848833	7.419	647094	10.960	388758	12.858	168197	3.964
20	6499045	865486	7.419	656146	10.960	388626	12.858	149781	3.964
21	6499046	884133	7.419	683299	10.960	407992	12.858	156503	3.970
22	6499047	882491	7.413	671498	10.960	386404	12.858	168884	3.958

IS1 (FBZ)=Fluorobenzene
IS2 (CBZ)=Chlorobenzene-d5
IS3 (DCB)=1,4-Dichlorobenzene-d4
IS4 (TBA)=t-Butyl Alcohol-d10

UPPER LIMIT = + 100%
of internal standard area.
LOWER LIMIT = - 50%
of internal standard area.

Column used to flag values outside QC limits with an asterisk
* Values outside of QC limits.

DHR08 0152

FORM VIII VOA

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.: DHR08___

Lab File ID (Standard): ad20c01.d Date Analyzed: 12/20/11

Instrument ID: HP09685 Time Analyzed: 10:49

Matrix: (soil/water) SOIL Level: (low/med) LOW Column: (pack/cap) CAP

	IS1(FBZ) AREA	#	RT	#	IS2(CBZ) AREA	#	RT	#	IS3(DCB) AREA	#	RT	#	IS4(TBA) AREA	#	RT	#
12 HOUR STD	966256		7.413		749016		10.960		475444		12.858		166198		3.957	
UPPER LIMIT	1932512		7.913		1498032		11.460		950888		13.358		332396		4.457	
LOWER LIMIT	483128		6.913		374508		10.460		237722		12.358		83099		3.457	
LAB SAMPLE ID																
23 6499048	887433		7.413		684890		10.960		419042		12.858		158073		3.958	
24 6499049	873524		7.413		665589		10.960		408760		12.858		168702		3.970	
25 6499050	844494		7.413		588574		10.960		287567		12.858		154535		3.958	

IS1 (FBZ)=Fluorobenzene
IS2 (CBZ)=Chlorobenzene-d5
IS3 (DCB)=1,4-Dichlorobenzene-d4
IS4 (TBA)=t-Butyl Alcohol-d10

UPPER LIMIT = + 100% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

Column used to flag values outside QC limits with an asterisk
* Values outside of QC limits.

FORM VIII VOA

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_DHR08___

Lab File ID (Standard): ad22c05.d Date Analyzed: 12/22/11

Instrument ID: HP09685 Time Analyzed: 10:18

Matrix: (soil/water) SOIL Level: (low/med) LOW Column: (pack/cap) CAP

		IS1(FBZ)		IS2(CBZ)		IS3(DCB)		IS4(TBA)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	1503553	7.413	1135838	10.960	680401	12.858	237599	3.952
	UPPER LIMIT	3007106	7.913	2271676	11.460	1360802	13.358	475198	4.452
	LOWER LIMIT	751776	6.913	567919	10.460	340200	12.358	118800	3.452
	LAB SAMPLE ID								
01	VBLKA80	1427979	7.413	1080407	10.960	620593	12.858	229401	3.952
02	LCSA80	1489242	7.413	1126087	10.960	670086	12.858	237021	3.958
03	LCS1A80	1505601	7.413	1131782	10.960	651395	12.858	236548	3.970
04	LCD1A80	1476405	7.413	1109745	10.960	627991	12.858	212407	3.958
05	6495620	1007146	7.413	592204	10.960	190939 *	12.858		
06	6497536	1430641	7.419	1079605	10.960	624177	12.858	270489	3.964
07	6499056	1392243	7.413	1029328	10.960	540743	12.858	213914	3.958
08	6495620RE	1031904	7.407	628062	10.954	199337 *	12.858		
09	6499057MS	1254912	7.413	957462	10.960	533809	12.858	239521	3.958
10	6499058MSD	1427926	7.419	1069898	10.960	617500	12.858	265392	3.970
11	6497540	1143615	7.413	679230	10.960	200961 *	12.858	167437	3.945
12	6497541	1443744	7.413	1094019	10.960	626347	12.858	247803	3.951
13	6497542	1382228	7.413	1055863	10.960	607707	12.858	215709	3.951
14	6499051	1384129	7.413	1049809	10.960	583083	12.852	207263	3.951
15	6499052	1384235	7.413	1059193	10.960	598530	12.858	213514	3.952
16	6499053	1398582	7.413	1070377	10.960	625937	12.858	212855	3.958
17	6499054	1367927	7.413	1037944	10.960	588812	12.858	210822	3.952
18	6499055	1368974	7.419	1038315	10.960	582158	12.858	208801	3.970
19	6499060	1398924	7.419	945987	10.960	380002	12.858	243479	3.964
20	6499061	1374045	7.419	960857	10.960	433680	12.858	249143	3.958
21	6498432	1371972	7.419	845897	10.960	313142 *	12.858	221492	3.964
22	6498437	1288600	7.419	939252	10.960	470766	12.858	209478	3.958

IS1 (FBZ)=Fluorobenzene
IS2 (CBZ)=Chlorobenzene-d5
IS3 (DCB)=1,4-Dichlorobenzene-d4
IS4 (TBA)=t-Butyl Alcohol-d10

UPPER LIMIT = + 100%
of internal standard area.
LOWER LIMIT = - 50%
of internal standard area.

DHR08 8154

Column used to flag values outside QC limits with an asterisk
* Values outside of QC limits.

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.: DHR08___

Lab File ID (Standard): ad22c05.d Date Analyzed: 12/22/11

Instrument ID: HP09685 Time Analyzed: 10:18

Matrix: (soil/water) SOIL Level: (low/med) LOW Column: (pack/cap) CAP

	IS1(FBZ) AREA #	RT #	IS2(CBZ) AREA #	RT #	IS3(DCB) AREA #	RT #	IS4(TBA) AREA #	RT #
12 HOUR STD	1503553	7.413	1135838	10.960	680401	12.858	237599	3.952
UPPER LIMIT	3007106	7.913	2271676	11.460	1360802	13.358	475198	4.452
LOWER LIMIT	751776	6.913	567919	10.460	340200	12.358	118800	3.452
LAB SAMPLE ID								
23 6498441	1473221	7.413	1089497	10.960	601428	12.858	252216	3.952
24 6498445	1420001	7.407	1025429	10.960	553918	12.858	233014	3.939
25 6498439	1548496	7.413	1121896	10.960	593161	12.858	266005	3.945
26 6498443	1570372	7.419	1068174	10.960	440030	12.858	285146	3.957
27 6498446	1457368	7.407	1063799	10.954	607787	12.858	326919	3.939

IS1 (FBZ)=Fluorobenzene
IS2 (CBZ)=Chlorobenzene-d5
IS3 (DCB)=1,4-Dichlorobenzene-d4
IS4 (TBA)=t-Butyl Alcohol-d10

UPPER LIMIT = + 100% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

Column used to flag values outside QC limits with an asterisk
* Values outside of QC limits.

FORM VIII VOA

DHR08 0155

Preparation and Run Logs

DHR00 0156

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VOA Prep Summary by SDG: DHR08

21 - GC/MS Volatiles

Sample Number	Bottle Code	Prep Analysis#	Vial ID	Used for Analysis?	Collected	Prepared	Initial Weight	Final Weight	Net soil weight	Weight requirement	Meets require-ments?	Preserv. lot #	Preservative (volume)	Final Extraction Vol (mL)	Problem Codes
6499034	169A	07578	11385145	N	12/13/11 08:50	12/14/11 13:35	29.39 g	35.29 g	5.90 g	4.50 g - 5.50 g	N	113321	MeOH w/surrogate (5 mL)	5.000	A
6499034	193A	08389	11386119	N	12/13/11 08:50	12/14/11 13:36	31.38 g	37.29 g	5.91 g	4.50 g - 5.50 g	N	1134601/V1-286-002	NaHSO4 (5 mL)	5.000	A
6499034	193B	08389	11386117	Y	12/13/11 08:50	12/14/11 13:36	31.36 g	37.00 g	5.64 g	4.50 g - 5.50 g	N	1134601/V1-286-002	NaHSO4 (5 mL)	5.000	A
6499035	169A	07578	11385135	N	12/13/11 08:55	12/14/11 13:37	29.45 g	35.44 g	5.99 g	4.50 g - 5.50 g	N	113321	MeOH w/surrogate (5 mL)	5.000	A
6499035	193A	08389	11386092	N	12/13/11 08:55	12/14/11 13:38	31.11 g	37.28 g	6.17 g	4.50 g - 5.50 g	N	1134601/V1-286-002	NaHSO4 (5 mL)	5.000	A
6499035	193B	08389	11386118	Y	12/13/11 08:55	12/14/11 13:39	31.35 g	37.35 g	6.00 g	4.50 g - 5.50 g	N	1134601/V1-286-002	NaHSO4 (5 mL)	5.000	A
6499036	169A	07578	11385183	N	12/13/11 08:55	12/14/11 13:40	29.44 g	35.15 g	5.71 g	4.50 g - 5.50 g	N	113321	MeOH w/surrogate (5 mL)	5.000	A
6499036	193A	08389	11386088	Y	12/13/11 08:55	12/14/11 13:40	30.98 g	36.76 g	5.78 g	4.50 g - 5.50 g	N	1134601/V1-286-002	NaHSO4 (5 mL)	5.000	A
6499036	193B	08389	11386120	Y	12/13/11 08:55	12/14/11 13:41	31.23 g	37.42 g	6.19 g	4.50 g - 5.50 g	N	1134601/V1-286-002	NaHSO4 (5 mL)	5.000	A
6499037	169A	07578	11385125	N	12/13/11 08:55	12/14/11 13:42	29.45 g	35.04 g	5.59 g	4.50 g - 5.50 g	N	113321	MeOH w/surrogate (5 mL)	5.000	A
6499037	193A	08389	11386080	Y	12/13/11 08:55	12/14/11 13:42	31.39 g	37.17 g	5.78 g	4.50 g - 5.50 g	N	1134601/V1-286-002	NaHSO4 (5 mL)	5.000	A
6499037	193B	08389	11386123	Y	12/13/11 08:55	12/14/11 13:43	31.31 g	37.33 g	6.02 g	4.50 g - 5.50 g	N	1134601/V1-286-002	NaHSO4 (5 mL)	5.000	A
6499039	169A	07578	11385182	N	12/13/11 09:00	12/14/11 13:44	29.37 g	35.11 g	5.74 g	4.50 g - 5.50 g	N	113321	MeOH w/surrogate (5 mL)	5.000	A
6499039	193A	08389	11386087	Y	12/13/11 09:00	12/14/11 13:44	31.08 g	36.67 g	5.59 g	4.50 g - 5.50 g	N	1134601/V1-286-002	NaHSO4 (5 mL)	5.000	A
6499039	193B	08389	11386122	N	12/13/11 09:00	12/14/11 13:45	31.56 g	37.74 g	6.18 g	4.50 g - 5.50 g	N	1134601/V1-286-002	NaHSO4 (5 mL)	5.000	A
6499040	169A	07578	11385179	N	12/13/11 09:20	12/14/11 13:46	29.23 g	35.49 g	6.26 g	4.50 g - 5.50 g	N	113321	MeOH w/surrogate (5 mL)	5.000	A
6499040	193A	08389	11386102	Y	12/13/11 09:20	12/14/11 13:46	31.27 g	37.48 g	6.21 g	4.50 g - 5.50 g	N	1134601/V1-286-002	NaHSO4 (5 mL)	5.000	A

Final Extraction Vol (mL) = Preservative Vol + Added MeOH (if applicable)

KEY to problem codes:

A = wt. does not meet requirements B = vial leaked C# where # = volume of MeOH added in mL due to sample not covered/matrix (lot #)
D = sampler not full E = effervescence observed F = pH >= 2 G = headspace in container

VOA Prep Summary by SDG: DHR08

21 - GC/MS Volatiles

Sample Number	Bottle Code	Prep Analysis#	Vial ID	Used for Analysis?	Collected	Prepared	Initial Weight	Final Weight	Net soil weight	Weight requirement	Meets require-ments?	Preserv. lot #	Preservative (volume)	Final Extraction Vol (mL)	Problem Codes
6499040	193B	08389	11386101	N	12/13/11 09:20	12/14/11 13:47	31.59 g	38.09 g	6.50 g	4.50 g - 5.50 g	N	1134601/V1-286-002	NaHSO4 (5 mL)	5.000	A
6499041	169A	07578	11385167	N	12/13/11 09:25	12/14/11 13:48	29.38 g	35.31 g	5.93 g	4.50 g - 5.50 g	N	113321	MeOH w/surrogate (5 mL)	5.000	A
6499041	193A	08389	11386100	Y	12/13/11 09:25	12/14/11 13:48	31.50 g	37.46 g	5.96 g	4.50 g - 5.50 g	N	1134601/V1-286-002	NaHSO4 (5 mL)	5.000	A
6499041	193B	08389	11386115	N	12/13/11 09:25	12/14/11 13:49	31.36 g	37.38 g	6.02 g	4.50 g - 5.50 g	N	1134601/V1-286-002	NaHSO4 (5 mL)	5.000	A
6499042	169A	07578	11385153	N	12/13/11 09:30	12/14/11 13:50	29.35 g	35.61 g	6.26 g	4.50 g - 5.50 g	N	113321	MeOH w/surrogate (5 mL)	5.000	A
6499042	193A	08389	11386042	N	12/13/11 09:30	12/14/11 13:50	31.36 g	37.25 g	5.89 g	4.50 g - 5.50 g	N	1134601/V1-286-002	NaHSO4 (5 mL)	5.000	A
6499042	193B	08389	11386043	Y	12/13/11 09:30	12/14/11 13:51	31.17 g	36.46 g	5.29 g	4.50 g - 5.50 g	Y	1134601/V1-286-002	NaHSO4 (5 mL)	5.000	
6499043	169A	07578	11385244	N	12/13/11 09:55	12/14/11 13:52	29.59 g	36.30 g	6.71 g	4.50 g - 5.50 g	N	113321	MeOH w/surrogate (5 mL)	5.000	A
6499043	193A	08389	11386041	N	12/13/11 09:55	12/14/11 13:52	31.19 g	38.13 g	6.94 g	4.50 g - 5.50 g	N	1134601/V1-286-002	NaHSO4 (5 mL)	5.000	A
6499043	193B	08389	11386018	Y	12/13/11 09:55	12/14/11 13:53	31.23 g	37.62 g	6.39 g	4.50 g - 5.50 g	N	1134601/V1-286-002	NaHSO4 (5 mL)	5.000	A
6499044	169A	07578	11385202	N	12/13/11 00:00	12/14/11 13:54	29.29 g	35.44 g	6.15 g	4.50 g - 5.50 g	N	113321	MeOH w/surrogate (5 mL)	5.000	A
6499044	193A	08389	11386024	N	12/13/11 00:00	12/14/11 13:55	30.94 g	36.78 g	5.84 g	4.50 g - 5.50 g	N	1134601/V1-286-002	NaHSO4 (5 mL)	5.000	A
6499044	193B	08389	11386005	Y	12/13/11 00:00	12/14/11 13:55	30.88 g	36.70 g	5.82 g	4.50 g - 5.50 g	N	1134601/V1-286-002	NaHSO4 (5 mL)	5.000	A
6499045	169A	07578	11385194	N	12/13/11 10:00	12/14/11 13:56	28.88 g	34.49 g	5.61 g	4.50 g - 5.50 g	N	113321	MeOH w/surrogate (5 mL)	5.000	A
6499045	193A	08389	11386021	Y	12/13/11 10:00	12/14/11 13:57	31.42 g	37.22 g	5.80 g	4.50 g - 5.50 g	N	1134601/V1-286-002	NaHSO4 (5 mL)	5.000	A
6499045	193B	08389	11386023	N	12/13/11 10:00	12/14/11 13:57	31.14 g	37.17 g	6.03 g	4.50 g - 5.50 g	N	1134601/V1-286-002	NaHSO4 (5 mL)	5.000	A
6499046	169A	07578	11385199	N	12/13/11 10:05	12/14/11 13:58	29.46 g	35.74 g	6.28 g	4.50 g - 5.50 g	N	113321	MeOH w/surrogate (5 mL)	5.000	A

Final Extraction Vol (mL) = Preservative Vol + Added MeOH (if applicable)

KEY to problem codes:

A = wt. does not meet requirements B = vial leaked C# where # = volume of MeOH added in mL due to sample not covered/matrix (lot #)
D = sampler not full E = effervescence observed F = pH >= 2 G = headspace in container

VOA Prep Summary by SDG: DHR08

21 - GC/MS Volatiles

Sample Number	Bottle Code	Prep Analysis#	Vial ID	Used for Analysis?	Collected	Prepared	Initial Weight	Final Weight	Net soil weight	Weight requirement	Meets requirements?	Preserv. lot #	Preservative (volume)	Final Extraction Vol (mL)	Problem Codes
6499046	193A	08389	11386012	N	12/13/11 10:05	12/14/11 13:59	30.93 g	36.95 g	6.02 g	4.50 g - 5.50 g	N	1134601/V1-286-002	NaHSO4 (5 mL)	5.000	A
6499046	193B	08389	11386011	Y	12/13/11 10:05	12/14/11 13:59	31.25 g	36.99 g	5.74 g	4.50 g - 5.50 g	N	1134601/V1-286-002	NaHSO4 (5 mL)	5.000	A
6499047	169A	07578	11385208	N	12/13/11 10:20	12/14/11 14:01	29.51 g	35.46 g	5.95 g	4.50 g - 5.50 g	N	113321	MeOH w/surrogate (5 mL)	5.000	A
6499047	193A	08389	11386015	N	12/13/11 10:20	12/14/11 14:01	31.27 g	37.15 g	5.88 g	4.50 g - 5.50 g	N	1134601/V1-286-002	NaHSO4 (5 mL)	5.000	A
6499047	193B	08389	11386016	Y	12/13/11 10:20	12/14/11 14:01	31.33 g	36.85 g	5.52 g	4.50 g - 5.50 g	N	1134601/V1-286-002	NaHSO4 (5 mL)	5.000	A
6499048	169A	07578	11385262	N	12/13/11 10:25	12/14/11 14:03	29.49 g	35.20 g	5.71 g	4.50 g - 5.50 g	N	113321	MeOH w/surrogate (5 mL)	5.000	A
6499048	193A	08389	11386040	N	12/13/11 10:25	12/14/11 14:03	31.44 g	37.42 g	5.98 g	4.50 g - 5.50 g	N	1134601/V1-286-002	NaHSO4 (5 mL)	5.000	A
6499048	193B	08389	11386051	Y	12/13/11 10:25	12/14/11 14:03	31.27 g	36.94 g	5.67 g	4.50 g - 5.50 g	N	1134601/V1-286-002	NaHSO4 (5 mL)	5.000	A
6499049	169A	07578	11385251	N	12/13/11 10:30	12/14/11 14:05	29.53 g	34.90 g	5.37 g	4.50 g - 5.50 g	Y	113321	MeOH w/surrogate (5 mL)	5.000	
6499049	193A	08389	11386027	Y	12/13/11 10:30	12/14/11 14:05	31.58 g	37.29 g	5.71 g	4.50 g - 5.50 g	N	1134601/V1-286-002	NaHSO4 (5 mL)	5.000	A
6499049	193B	08389	11386007	N	12/13/11 10:30	12/14/11 14:05	31.03 g	37.10 g	6.07 g	4.50 g - 5.50 g	N	1134601/V1-286-002	NaHSO4 (5 mL)	5.000	A
6499050	169A	07578	11385253	N	12/13/11 10:50	12/14/11 14:07	29.47 g	36.00 g	6.53 g	4.50 g - 5.50 g	N	113321	MeOH w/surrogate (5 mL)	5.000	A
6499050	193A	08389	11386025	Y	12/13/11 10:50	12/14/11 14:07	30.93 g	37.12 g	6.19 g	4.50 g - 5.50 g	N	1134601/V1-286-002	NaHSO4 (5 mL)	5.000	A
6499050	193B	08389	11386020	N	12/13/11 10:50	12/14/11 14:08	31.29 g	37.50 g	6.21 g	4.50 g - 5.50 g	N	1134601/V1-286-002	NaHSO4 (5 mL)	5.000	A
6499051	169A	07578	11385238	N	12/13/11 10:55	12/14/11 14:09	29.46 g	35.43 g	5.97 g	4.50 g - 5.50 g	N	113321	MeOH w/surrogate (5 mL)	5.000	A
6499051	193A	08389	11386022	Y	12/13/11 10:55	12/14/11 14:09	31.04 g	36.78 g	5.74 g	4.50 g - 5.50 g	N	1134601/V1-286-002	NaHSO4 (5 mL)	5.000	A
6499051	193B	08389	11386006	N	12/13/11 10:55	12/14/11 14:09	31.19 g	37.07 g	5.88 g	4.50 g - 5.50 g	N	1134601/V1-286-002	NaHSO4 (5 mL)	5.000	A

Final Extraction Vol (mL) = Preservative Vol + Added MeOH (if applicable)

KEY to problem codes:

A = wt. does not meet requirements B = vial leaked C# where # = volume of MeOH added in mL due to sample not covered/matrix (lot #)
D = sampler not full E = effervescence observed F = pH >= 2 G = headspace in container

VOA Prep Summary by SDG: DHR08

21 - GC/MS Volatiles

Sample Number	Bottle Code	Prep Analysis#	Vial ID	Used for Analysis?	Collected	Prepared	Initial Weight	Final Weight	Net soil weight	Weight requirement	Meets require-ments?	Preserv. lot #	Preservative (volume)	Final Extraction Vol (mL)	Problem Codes
6499052	169A	07578	11385254	N	12/13/11 11:00	12/14/11 14:11	29.53 g	35.40 g	5.87 g	4.50 g - 5.50 g	N	113321	MeOH w/surrogate (5 mL)	5.000	A
6499052	193A	08389	11386010	Y	12/13/11 11:00	12/14/11 14:11	31.40 g	36.93 g	5.53 g	4.50 g - 5.50 g	N	1134601/V1-286-002	NaHSO4 (5 mL)	5.000	A
6499052	193B	08389	11386017	N	12/13/11 11:00	12/14/11 14:11	31.34 g	37.72 g	6.38 g	4.50 g - 5.50 g	N	1134601/V1-286-002	NaHSO4 (5 mL)	5.000	A
6499056	169A	07578	11385196	N	12/13/11 14:55	12/14/11 14:20	29.27 g	34.90 g	5.63 g	4.50 g - 5.50 g	N	113321	MeOH w/surrogate (5 mL)	5.000	A
6499056	193A	08389	11386008	Y	12/13/11 14:55	12/14/11 14:20	31.36 g	37.39 g	6.03 g	4.50 g - 5.50 g	N	1134601/V1-286-002	NaHSO4 (5 mL)	5.000	A
6499056	193B	08389	11386039	N	12/13/11 14:55	12/14/11 14:21	31.34 g	37.59 g	6.25 g	4.50 g - 5.50 g	N	1134601/V1-286-002	NaHSO4 (5 mL)	5.000	A
6499057	169A	07578	11385211	N	12/13/11 14:55	12/14/11 14:22	29.41 g	34.86 g	5.45 g	4.50 g - 5.50 g	Y	113321	MeOH w/surrogate (5 mL)	5.000	
6499057	193A	08389	11386009	N	12/13/11 14:55	12/14/11 14:22	31.04 g	36.99 g	5.95 g	4.50 g - 5.50 g	N	1134601/V1-286-002	NaHSO4 (5 mL)	5.000	A
6499057	193B	08389	11386046	Y	12/13/11 14:55	12/14/11 14:23	31.43 g	36.96 g	5.53 g	4.50 g - 5.50 g	N	1134601/V1-286-002	NaHSO4 (5 mL)	5.000	A
6499058	169A	07578	11385206	N	12/13/11 14:55	12/14/11 14:24	29.39 g	34.90 g	5.51 g	4.50 g - 5.50 g	N	113321	MeOH w/surrogate (5 mL)	5.000	A
6499058	193A	08389	11386026	N	12/13/11 14:55	12/14/11 14:24	31.23 g	37.04 g	5.81 g	4.50 g - 5.50 g	N	1134601/V1-286-002	NaHSO4 (5 mL)	5.000	A
6499058	193B	08389	11386049	Y	12/13/11 14:55	12/14/11 14:24	31.17 g	36.77 g	5.60 g	4.50 g - 5.50 g	N	1134601/V1-286-002	NaHSO4 (5 mL)	5.000	A

Final Extraction Vol (mL) = Preservative Vol + Added MeOH (if applicable)

KEY to problem codes:

A = wt. does not meet requirements B = vial leaked C# where # = volume of MeOH added in mL due to sample not covered/matrix (lot #)
D = sampler not full E = effervescence observed F = pH >= 2 G = headspace in container

Lancaster Laboratories
Runlog for Hewelet Packard GC/MS System HP09685 **HP #22**

** Shift #1 Analyst:_____** Shift #2 Analyst:___SEJ_____** Shift #3 Analyst:___SAS_____*

Comment Code: R = Reinjection necessary X = Sample sent to be reextracted
S = Surrogate problem I = Internal Standard problem
NU = Not used F = Further dilution required
MR = Meets requirements IUO = Internal use only
Cz = Confirms z, (z = S, I or X) T = Injected outside valid tune period

Other problems or comments are as follows:

_____8260 LOW LEVEL SOILS_____

_____

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_____

Data Directory Path is - D:\data\11AUG05A\

FILE	SAMPLE	LLI#	DATE	TIME	BATCH	D.F.	NOTES
AG05T01.D	BFB MAR31-11	50NG BFB	05 Aug 11	16:24			MR
AG05I01.D	VSTD300	VSTD300	05 Aug 11	16:46			MR
AG05I02.D	VSTD100	VSTD100	05 Aug 11	17:09			MR
AG05I03.D	VSTD050	VSTD050	05 Aug 11	17:31			MR
AG05I04.D	VSTD020	VSTD020	05 Aug 11	17:54			MR
AG05I05.D	VSTD010	VSTD010	05 Aug 11	18:16			MR
AG05I06.D	VSTD004	VSTD004	05 Aug 11	18:39			MR
AG05M01.D	VSTD001	VSTD0001	05 Aug 11	19:01			MR
AG05I11.D	VSTD300	VSTD300	05 Aug 11	19:24			MR
AG05I12.D	VSTD100	VSTD100	05 Aug 11	19:46			MR
AG05I13.D	VSTD050	VSTD050	05 Aug 11	20:09			MR
AG05I14.D	VSTD020	VSTD020	05 Aug 11	20:31			MR
AG05I15.D	VSTD010	VSTD010	05 Aug 11	20:54			MR
AG05I16.D	VSTD004	VSTD004	05 Aug 11	21:17			MR
AG05M11.D	VSTD001	VSTD0001	05 Aug 11	21:39			MR
AG05B01.D	VBLKA00	VBLKA00	05 Aug 11	22:02	A112171AA		MR
AG05L01.D	LCSA00	LCSA00	05 Aug 11	22:24	A112171AA		NU
AG05L02.D	LCS1A00	LCS1A00	05 Aug 11	22:47	A112171AA		MR
AG05S01.D	XXXXXRE	6355784RE	05 Aug 11	23:09	A112171AA		CI
AG05L03.D	LCDA00	LCDA00	05 Aug 11	23:53	A112171AA		MR
AG05L04.D	LCDA00	LCDA00	06 Aug 11	00:18	A112171AA		MR
AG05L05.D	LCD1A00	LCD1A00	06 Aug 11	00:41	A112171AA		MR

Lancaster Laboratories
Runlog for Hewelet Packard GC/MS System HP09685 **HP #22**

** Shift #1 Analyst:_____** Shift #2 Analyst:___SJ_____** Shift #3 Analyst:_____*

Comment Code: R = Reinjection necessary X = Sample sent to be reextracted
S = Surrogate problem I = Internal Standard problem
NU = Not used F = Further dilution required
MR = Meets requirements IUO = Internal use only
Cz = Confirms z, (z = S, I or X) T = Injected outside valid tune period

Other problems or comments are as follows:

_____8260 LOW LEVEL SOILS_____

_____

_____

_____

Data Directory Path is - D:\data\11AUG29A\

FILE	SAMPLE	LLI#	DATE	TIME	BATCH	D.F.	NOTES
AG29T01.D	BFB MAR31-11	50NG BFB	29 Aug 11	16:52			MR
AG29I01.D	VSTD300	VSTD300	29 Aug 11	17:17			MR
AG29I02.D	VSTD100	VSTD100	29 Aug 11	17:40			MR
AG29I03.D	VSTD050	VSTD050	29 Aug 11	18:03			MR
AG29I04.D	VSTD020	VSTD020	29 Aug 11	18:26			MR
AG29I05.D	VSTD010	VSTD010	29 Aug 11	18:49			MR
AG29I06.D	VSTD004	VSTD004	29 Aug 11	19:12			MR
AG29M01.D	VSTD001	VSTD001	29 Aug 11	19:34			MR
AG29C01.D	VSTD050	VSTD050	29 Aug 11	20:04			MR
AG29B01.D	VBLKA16	VBLKA16	29 Aug 11	20:27	A112411AA		MR
AG29L01.D	LCSA16	LCSA16	29 Aug 11	21:03	A112411AA		MR
AG29L02.D	LCDA16	LCDA16	29 Aug 11	21:26	A112411AA		MR
AG29L03.D	LCS1A16	LCS1A16	29 Aug 11	22:01	A112411AA		MR
AG29L04.D	LCD1A16	LCD1A16	29 Aug 11	22:24	A112411AA		MR

Lancaster Laboratories
Runlog for Hewelet Packard GC/MS System HP09685 **HP #22**

** Shift #1 Analyst: ERS ** Shift #2 Analyst: AEL ** Shift #3 Analyst: _____ *

Comment Code:

R =	Reinjection necessary	X =	Sample sent to be reextracted
S =	Surrogate problem	I =	Internal Standard problem
NU =	Not used	F =	Further dilution required
MR =	Meets requirements	IUO =	Internal use only
Cz =	Confirms z, (z = S, I or X)	T =	Injected outside valid tune period

Other problems or comments are as follows:

8260B LOW SOILS - NAHSO4 PRESERVED

Data Directory Path is - D:\data\11DEC20A\

FILE	SAMPLE	LLI#	DATE	TIME	BATCH	D.F.	NOTES
AD20X01.D	CLNBLK	CLNBLK	20 Dec 11	10:01			NU
AD20T01.D	1uL BFB SEPT28-11	50NG BFB	20 Dec 11	10:25			MR
AD20C01.D	VSTD050	VSTD050	20 Dec 11	10:49			MR
AD20C02.D	VSTD050	VSTD050	20 Dec 11	11:16			MR
AD20B00.D	VBLKA77	VBLKA77	20 Dec 11	11:39	A113541AA		NU
AD20B01.D	VBLKA77	VBLKA77	20 Dec 11	12:02	A113541AA		MR
AD20L01.D	LCSA77	LCSA77	20 Dec 11	12:33	A113541AA		MR
AD20L02.D	LCS1A77	LCS1A77	20 Dec 11	13:16	A113541AA		MR
AD20S01.D	XXXXX	6497123	20 Dec 11	14:06	A113541AA		MR
AD20S02.D	XXXXX	6500584	20 Dec 11	14:28	A113541AA		MR
AD20S03.D	XXXXX	6500585	20 Dec 11	14:51	A113541AA		MR
AD20S04.D	XXXXX	6500586	20 Dec 11	15:14	A113541AA		MR
AD20S05.D	XXXXX	6499034	20 Dec 11	15:36	A113541AA		MR
AD20S06.D	XXXXX	6499035	20 Dec 11	15:59	A113541AA		MR
AD20S07.D	XXXXXMS	6499036MS	20 Dec 11	16:22	A113541AA		MR
AD20S08.D	XXXXXMSD	6499037MSD	20 Dec 11	16:44	A113541AA		MR
AD20S09.D	XXXXXMS1	6499036	20 Dec 11	17:07	A113541AA		MR
AD20S10.D	XXXXXMSD1	6499037	20 Dec 11	17:30	A113541AA		MR
AD20S11.D	XXXXX	6499039	20 Dec 11	17:53	A113541AA		MR
AD20S12.D	XXXXX	6499040	20 Dec 11	18:15	A113541AA		MR
AD20S13.D	XXXXX	6499041	20 Dec 11	18:38	A113541AA		MR
AD20S14.D	XXXXX	6499042	20 Dec 11	19:01	A113541AA		MR
AD20S15.D	XXXXX	6499043	20 Dec 11	19:24	A113541AA		MR
AD20S16.D	XXXXX	6499044	20 Dec 11	19:47	A113541AA		MR
AD20S17.D	XXXXX	6499045	20 Dec 11	20:09	A113541AA		MR
AD20S18.D	XXXXX	6499046	20 Dec 11	20:32	A113541AA		MR
AD20S19.D	XXXXX	6499047	20 Dec 11	20:55	A113541AA		MR
AD20S20.D	XXXXX	6499048	20 Dec 11	21:17	A113541AA		MR
AD20S21.D	XXXXX	6499049	20 Dec 11	21:40	A113541AA		MR
AD20S22.D	XXXXX	6499050	20 Dec 11	22:02	A113541AA		MR

Lancaster Laboratories
Runlog for Hewelet Packard GC/MS System HP09685 **HP #22**

** Shift #1 Analyst: CBE ** Shift #2 Analyst: AEL ** Shift #3 Analyst:
*

Comment Code:
R = Reinjection necessary
S = Surrogate problem
NU = Not used
MR = Meets requirements
Cz = Confirms z, (z = S, I or X)
X = Sample sent to be reextracted
I = Internal Standard problem
F = Further dilution required
IUO = Internal use only
T = Injected outside valid tune period

Other problems or comments are as follows:

*LINE WAS MANUALLY EDITED

Data Directory Path is - D:\data\11DEC22B\

FILE	SAMPLE	LLI#	DATE	TIME	BATCH	D.F.	NOTES
AD22T05.D	1uL BFB SEPT28-11	50NG BFB	22 Dec 11	09:54			MR
AD22C05.D	VSTD050	VSTD050	22 Dec 11	10:18			MR
AD22C06.D	VSTD050	VSTD050	22 Dec 11	10:40			MR
AD22B05.D	VBLKA80	VBLKA80	22 Dec 11	11:03	A113561AA		NU
AD22B06.D	VBLKA80	VBLKA80	22 Dec 11	11:26	A113561AA		MR
AD22L01.D	LCSA80	LCSA80	22 Dec 11	11:50	A113561AA		MR
AD22L02.D	LCS1A80	LCS1A80	22 Dec 11	12:16	A113561AA		MR
AD22L03.D	LCD1A80	LCD1A80	22 Dec 11	12:39	A113561AA		MR
AD22S00.D	XXXXX	6495620	22 Dec 11	13:02	A113561AA		IS
AD22S01.D	XXXXX	6497536	22 Dec 11	13:25	A113561AA		MR*
AD22S02.D	XXXXX	6499056	22 Dec 11	13:48	A113561AA		MR
AD22S23.D	XXXXXRE	6495620RE	22 Dec 11	14:11	A113561AA		CI
AD22S03.D	XXXXXMS	6499057MS	22 Dec 11	14:33	A113561AA		MR
AD22S04.D	XXXXXMSD	6499058MSD	22 Dec 11	14:56	A113561AA		MR
AD22S05.D	XXXXX	6497540	22 Dec 11	15:19	A113561AA		I
AD22S06.D	XXXXX	6497541	22 Dec 11	15:41	A113561AA		MR
AD22S07.D	XXXXX	6497542	22 Dec 11	16:04	A113561AA		MR
AD22S08.D	XXXXX	6499051	22 Dec 11	16:27	A113561AA		MR
AD22S09.D	XXXXX	6499052	22 Dec 11	16:49	A113561AA		MR
AD22S10.D	XXXXX	6499053	22 Dec 11	17:12	A113561AA		MR
AD22S11.D	XXXXX	6499054	22 Dec 11	17:35	A113561AA		MR
AD22S12.D	XXXXX	6499055	22 Dec 11	17:57	A113561AA		MR
AD22S13.D	XXXXX	6499060	22 Dec 11	18:20	A113561AA		MR
AD22S14.D	XXXXX	6499061	22 Dec 11	18:43	A113561AA		MR
AD22S15.D	XXXXX	6498434	22 Dec 11	19:05	A113561AA		NU
AD22S16.D	XXXXX	6498432	22 Dec 11	19:28	A113561AA		I
AD22S17.D	XXXXX	6498437	22 Dec 11	19:50	A113561AA		MR
AD22S18.D	XXXXX	6498441	22 Dec 11	20:13	A113561AA		MR
AD22S19.D	XXXXX	6498445	22 Dec 11	20:36	A113561AA		MR
AD22S20.D	XXXXX	6498439	22 Dec 11	20:59	A113561AA		MR
AD22S21.D	XXXXX	6498443	22 Dec 11	21:21	A113561AA		MR
AD22S22.D	XXXXX	6498446	22 Dec 11	21:44	A113561AA		MR

DHR8164

Semivolatiles by GC/MS Data

Case Narrative
Conformance/Nonconformance
Summary

eurofins | Lancaster Laboratories

Case Narrative

CLIENT: CH2M Hill, Inc.
SDG: DHR08

GC/MS Semivolatiles
Fraction: Semivolatiles by GC/MS

TCL SW846 Semivolatiles/Waters
TCL 8270 (microwave)

Sample #	Client ID	Matrix Liquid	Matrix Solid	DF	Comments
6499033	HGR-121311-EB01	X		1	Equipment Blank
6499034	S11-SS04-0002-121311		X	1	
6499035	S11-SS04-0305-121311		X	1	Unspiked
6499036	S11-SS04-0305-121311MS		X	1	Matrix Spike
6499037	S11-SS04-0305-121311MSD		X	1	Matrix Spike Duplicate
6499039	S11-SS04-0810-121311		X	1	
6499040	S11-SS03-0002-121311		X	1	
6499041	S11-SS03-0305-121311		X	1	
6499042	S11-SS03-0810-121311		X	1	
6499043	S11-SS02-0002-121311		X	1	
6499044	HGR-121311-FD01		X	1	Field Duplicate Sample
6499045	S11-SS02-0305-121311		X	1	
6499046	S11-SS02-0810-121311		X	1	
6499047	S11-SS01-0002-121311		X	1	
6499048	S11-SS01-0308-121311		X	1	
6499049	S11-SS01-0810-121311		X	1	
6499050	S11-SS05-0002-121311		X	1	
6499051	S11-SS05-0305-121311		X	1	
6499052	S11-SS05-0810-121311		X	1	

See QC Reference List for Associated Batch QC Samples.

SAMPLE RECEIPT:

Samples were received in good condition and within temperature requirements.

HOLDING TIME:

All holding times were met.

PREPARATION/EXTRACTION/DIGESTION:

No problems were encountered.

DHR08 0167

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Case Narrative

CLIENT: CH2M Hill, Inc.
SDG: DHR08

GC/MS Semivolatiles
Fraction: Semivolatiles by GC/MS

CALIBRATION/STANDARDIZATION:

All criteria were met.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

LCS/LCSD

The % RPD for target analyte in 353WALCS/LCSD is outside the QC acceptance limits as noted on the QC Summary. Since the individual % recovery is within the acceptance limits, the data is reported.

SAMPLE ANALYSIS:

No problems were encountered with the analysis of the samples.

DATA INTERPRETATION:

No further interpretation is necessary for the data submitted.

Abbreviation Key

UNSPK = Unspiked (for MS/MSD)	LOQ = Limit of Quantitation
MS = Matrix Spike	MDL = Method Detection Limit
MSD = Matrix Spike Duplicate	ND = Not Detected
BKG = Background (for Duplicate)	J = Estimated Value
D = Duplicate (DUP)	E= out of calibration range
LCS = Lab Control Sample	RE = Repreparation/Reanalysis
LCSD = Lab Control Sample Duplicate	* = Out of Specification

Narrative Reviewed and Approved 1/19/12 (Date) by

Jessica R. Baron
Specialist

DHR08 8168

Quality Control and Calibration Summary Forms

DHS68 8869

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LOQ/MDL Summary
GC/MS Semivolatiles

SDG: DHR08

Fraction: Semivolatiles by GC/MS

10727: TCL 8270 (microwave) Analyte Name	Default MDL	Default LOQ	Units
1,4-Dioxane	100	330	ug/kg
Phenol	17	33	ug/kg
bis(2-Chloroethyl)ether	17	33	ug/kg
2-Chlorophenol	17	33	ug/kg
Benzyl alcohol	170	500	ug/kg
2-Methylphenol	17	33	ug/kg
4-Methylphenol	17	33	ug/kg
N-Nitroso-di-n-propylamine	17	33	ug/kg
Hexachloroethane	33	170	ug/kg
Nitrobenzene	17	33	ug/kg
Isophorone	17	33	ug/kg
2-Nitrophenol	17	33	ug/kg
2,4-Dimethylphenol	17	33	ug/kg
bis(2-Chloroethoxy)methane	17	33	ug/kg
2,4-Dichlorophenol	17	33	ug/kg
4-Chloroaniline	17	33	ug/kg
4-Chloro-3-methylphenol	17	33	ug/kg
2-Methylnaphthalene	3	17	ug/kg
Hexachlorocyclopentadiene	170	500	ug/kg
2,4,6-Trichlorophenol	17	33	ug/kg
2,4,5-Trichlorophenol	17	33	ug/kg
1,1'-Biphenyl	17	33	ug/kg
2-Chloronaphthalene	7	33	ug/kg
2-Nitroaniline	17	33	ug/kg
Dimethylphthalate	67	170	ug/kg
2,6-Dinitrotoluene	17	33	ug/kg
Acenaphthylene	3	17	ug/kg
3-Nitroaniline	67	170	ug/kg
Acenaphthene	3	17	ug/kg
2,4-Dinitrophenol	300	1,000	ug/kg
4-Nitrophenol	170	500	ug/kg
2,4-Dinitrotoluene	67	170	ug/kg
Dibenzofuran	17	33	ug/kg
Diethylphthalate	67	170	ug/kg
Fluorene	3	17	ug/kg
4-Chlorophenyl-phenylether	17	33	ug/kg
4-Nitroaniline	67	170	ug/kg
4,6-Dinitro-2-methylphenol	170	500	ug/kg
N-Nitrosodiphenylamine	17	33	ug/kg
4-Bromophenyl-phenylether	17	33	ug/kg
Hexachlorobenzene	3	17	ug/kg
Pentachlorophenol	33	170	ug/kg
Phenanthrene	3	17	ug/kg
Anthracene	3	17	ug/kg
Carbazole	17	33	ug/kg
Di-n-butylphthalate	67	170	ug/kg
Fluoranthene	3	17	ug/kg

DHR08 8178

Fraction: Semivolatiles by GC/MS

10727: TCL 8270 (microwave) Analyte Name	Default MDL	Default LOQ	Units
Pyrene	3	17	ug/kg
Butylbenzylphthalate	67	170	ug/kg
bis(2-Ethylhexyl)phthalate	67	170	ug/kg
3,3'-Dichlorobenzidine	100	330	ug/kg
Benzo(a)anthracene	3	17	ug/kg
Chrysene	3	17	ug/kg
Di-n-octylphthalate	67	170	ug/kg
Benzo(b)fluoranthene	3	17	ug/kg
Benzo(k)fluoranthene	3	17	ug/kg
Benzo(a)pyrene	3	17	ug/kg
Indeno(1,2,3-cd)pyrene	3	17	ug/kg
Dibenz(a,h)anthracene	3	17	ug/kg
Benzo(g,h,i)perylene	3	17	ug/kg

04678: TCL SW846 Semivolatiles/Waters Analyte Name	Default MDL	Default LOQ	Units
1,4-Dioxane	1	5	ug/l
Phenol	0.5	1	ug/l
bis(2-Chloroethyl)ether	0.5	1	ug/l
2-Chlorophenol	0.5	1	ug/l
Benzyl alcohol	5	15	ug/l
2-Methylphenol	0.5	1	ug/l
4-Methylphenol	0.5	1	ug/l
N-Nitroso-di-n-propylamine	0.5	1	ug/l
Hexachloroethane	1	5	ug/l
Nitrobenzene	0.5	1	ug/l
Isophorone	0.5	1	ug/l
2-Nitrophenol	0.5	1	ug/l
2,4-Dimethylphenol	0.5	1	ug/l
bis(2-Chloroethoxy)methane	0.5	1	ug/l
2,4-Dichlorophenol	0.5	1	ug/l
4-Chloroaniline	0.5	1	ug/l
4-Chloro-3-methylphenol	0.5	1	ug/l
2-Methylnaphthalene	0.1	0.5,	ug/l
Hexachlorocyclopentadiene	5	15	ug/l
2,4,6-Trichlorophenol	0.5	1	ug/l
2,4,5-Trichlorophenol	0.5	1	ug/l
1,1'-Biphenyl	0.5	1	ug/l
2-Chloronaphthalene	0.4	1	ug/l
2-Nitroaniline	0.5	1	ug/l
Dimethylphthalate	2	5	ug/l
2,6-Dinitrotoluene	0.5	1	ug/l
Acenaphthylene	0.1	0.5	ug/l
3-Nitroaniline	0.5	1	ug/l
Acenaphthene	0.1	0.5	ug/l
2,4-Dinitrophenol	10	30	ug/l
4-Nitrophenol	10	30	ug/l

DHR08 0121

Fraction: Semivolatiles by GC/MS

04678: TCL SW846 Semivolatiles/Waters Analyte Name	Default MDL	Default LOQ	Units
2,4-Dinitrotoluene	1	5	ug/l
Dibenzofuran	0.5	1	ug/l
Diethylphthalate	2	5	ug/l
Fluorene	0.1	0.5	ug/l
4-Chlorophenyl-phenylether	0.5	1	ug/l
4-Nitroaniline	0.5	1	ug/l
4,6-Dinitro-2-methylphenol	5	15	ug/l
N-Nitrosodiphenylamine	0.5	1	ug/l
4-Bromophenyl-phenylether	0.5	1	ug/l
Hexachlorobenzene	0.1	0.5	ug/l
Pentachlorophenol	1	5	ug/l
Phenanthrene	0.1	0.5	ug/l
Anthracene	0.1	0.5	ug/l
Carbazole	0.5	1	ug/l
Di-n-butylphthalate	2	5	ug/l
Fluoranthene	0.1	0.5	ug/l
Pyrene	0.1	0.5	ug/l
Butylbenzylphthalate	2	5	ug/l
bis(2-Ethylhexyl)phthalate	2	5	ug/l
3,3'-Dichlorobenzidine	2	5	ug/l
Benzo(a)anthracene	0.1	0.5	ug/l
Chrysene	0.1	0.5	ug/l
Di-n-octylphthalate	2	5	ug/l
Benzo(b)fluoranthene	0.1	0.5	ug/l
Benzo(k)fluoranthene	0.1	0.5	ug/l
Benzo(a)pyrene	0.1	0.5	ug/l
Indeno(1,2,3-cd)pyrene	0.1	0.5	ug/l
Dibenz(a,h)anthracene	0.1	0.5	ug/l
Benzo(g,h,i)perylene	0.1	0.5	ug/l

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Quality Control Reference List
GC/MS Semivolatiles

CLIENT: CH2M Hill, Inc.
SDG: DHR08

Fraction: Semivolatiles by GC/MS

Analysis	Batch Number	Sample Number	Analysis Date
TCL 8270 (microwave)	11349SLA026	SBLKLA349	12/16/2011 03:58:00
		349LALCS	12/16/2011 04:23:00
		6499034	12/16/2011 07:21:00
		6499035 UNSPK	12/16/2011 06:05:00
		6499036 MS	12/16/2011 06:30:00
		6499037 MSD	12/16/2011 06:56:00
		6499039	12/16/2011 07:46:00
		6499040	12/16/2011 08:12:00
		6499041	12/16/2011 08:37:00
		6499042	12/16/2011 09:03:00
		6499043	12/16/2011 09:28:00
		6499044	12/16/2011 09:54:00
		6499045	12/16/2011 10:20:00
		6499046	12/16/2011 10:45:00
		6499047	12/16/2011 11:11:00
		6499048	12/16/2011 11:36:00
		6499049	12/16/2011 12:02:00
		6499050	12/16/2011 12:26:00
		6499051	12/16/2011 12:51:00
		6499052	12/16/2011 13:17:00
TCL SW846 Semivolatiles/Waters	11353WAA026	SBLKWA353	12/20/2011 17:02:00
		353WALCS	12/20/2011 17:28:00
		353WALCSD	12/20/2011 17:53:00
		6499033	12/20/2011 19:09:00

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Quality Control Summary
Method Blank
GC/MS Semivolatiles
SDG: DHR08
Matrix: SOLID

Fraction: Semivolatiles by GC/MS

11349SLA026 / SBLKLA349 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
1,4-Dioxane	12/16/11	N.D.	ug/kg	100	330
Phenol	12/16/11	N.D.	ug/kg	17	33
bis(2-Chloroethyl)ether	12/16/11	N.D.	ug/kg	17	33
2-Chlorophenol	12/16/11	N.D.	ug/kg	17	33
Benzyl alcohol	12/16/11	N.D.	ug/kg	170	500
2-Methylphenol	12/16/11	N.D.	ug/kg	17	33
4-Methylphenol	12/16/11	N.D.	ug/kg	17	33
N-Nitroso-di-n-propylamine	12/16/11	N.D.	ug/kg	17	33
Hexachloroethane	12/16/11	N.D.	ug/kg	33	170
Nitrobenzene	12/16/11	N.D.	ug/kg	17	33
Isophorone	12/16/11	N.D.	ug/kg	17	33
2-Nitrophenol	12/16/11	N.D.	ug/kg	17	33
2,4-Dimethylphenol	12/16/11	N.D.	ug/kg	17	33
bis(2-Chloroethoxy)methane	12/16/11	N.D.	ug/kg	17	33
2,4-Dichlorophenol	12/16/11	N.D.	ug/kg	17	33
4-Chloroaniline	12/16/11	N.D.	ug/kg	17	33
4-Chloro-3-methylphenol	12/16/11	N.D.	ug/kg	17	33
2-Methylnaphthalene	12/16/11	N.D.	ug/kg	3	17
Hexachlorocyclopentadiene	12/16/11	N.D.	ug/kg	170	500
2,4,6-Trichlorophenol	12/16/11	N.D.	ug/kg	17	33
2,4,5-Trichlorophenol	12/16/11	N.D.	ug/kg	17	33
1,1'-Biphenyl	12/16/11	N.D.	ug/kg	17	33
2-Chloronaphthalene	12/16/11	N.D.	ug/kg	7	33
2-Nitroaniline	12/16/11	N.D.	ug/kg	17	33
Dimethylphthalate	12/16/11	N.D.	ug/kg	67	170
2,6-Dinitrotoluene	12/16/11	N.D.	ug/kg	17	33
Acenaphthylene	12/16/11	N.D.	ug/kg	3	17
3-Nitroaniline	12/16/11	N.D.	ug/kg	67	170
Acenaphthene	12/16/11	N.D.	ug/kg	3	17
2,4-Dinitrophenol	12/16/11	N.D.	ug/kg	330	1000
4-Nitrophenol	12/16/11	N.D.	ug/kg	170	500
2,4-Dinitrotoluene	12/16/11	N.D.	ug/kg	67	170
Dibenzofuran	12/16/11	N.D.	ug/kg	17	33
Diethylphthalate	12/16/11	N.D.	ug/kg	67	170
Fluorene	12/16/11	N.D.	ug/kg	3	17
4-Chlorophenyl-phenylether	12/16/11	N.D.	ug/kg	17	33
4-Nitroaniline	12/16/11	N.D.	ug/kg	67	170
4,6-Dinitro-2-methylphenol	12/16/11	N.D.	ug/kg	170	500
N-Nitrosodiphenylamine	12/16/11	N.D.	ug/kg	17	33
4-Bromophenyl-phenylether	12/16/11	N.D.	ug/kg	17	33
Hexachlorobenzene	12/16/11	N.D.	ug/kg	3	17
Pentachlorophenol	12/16/11	N.D.	ug/kg	33	170
Phenanthrene	12/16/11	N.D.	ug/kg	3	17
Anthracene	12/16/11	N.D.	ug/kg	3	17
Carbazole	12/16/11	N.D.	ug/kg	17	33

[illegible] 8174

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Quality Control Summary
Method Blank
GC/MS Semivolatiles
SDG: DHR08
Matrix: SOLID

Fraction: Semivolatiles by GC/MS

11349SLA026 / SBLKLA349 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Di-n-butylphthalate	12/16/11	N.D.	ug/kg	67	170
Fluoranthene	12/16/11	N.D.	ug/kg	3	17
Pyrene	12/16/11	N.D.	ug/kg	3	17
Butylbenzylphthalate	12/16/11	N.D.	ug/kg	67	170
bis(2-Ethylhexyl)phthalate	12/16/11	N.D.	ug/kg	67	170
3,3'-Dichlorobenzidine	12/16/11	N.D.	ug/kg	100	330
Benzo(a)anthracene	12/16/11	N.D.	ug/kg	3	17
Chrysene	12/16/11	N.D.	ug/kg	3	17
Di-n-octylphthalate	12/16/11	N.D.	ug/kg	67	170
Benzo(b)fluoranthene	12/16/11	N.D.	ug/kg	3	17
Benzo(k)fluoranthene	12/16/11	N.D.	ug/kg	3	17
Benzo(a)pyrene	12/16/11	N.D.	ug/kg	3	17
Indeno(1,2,3-cd)pyrene	12/16/11	N.D.	ug/kg	3	17
Dibenz(a,h)anthracene	12/16/11	N.D.	ug/kg	3	17
Benzo(g,h,i)perylene	12/16/11	N.D.	ug/kg	3	17

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Quality Control Summary
Method Blank
GC/MS Semivolatiles
SDG: DHR08
Matrix: LIQUID

Fraction: Semivolatiles by GC/MS

11353WAA026 / SBLKWA353 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
1,4-Dioxane	12/20/11	N.D.	ug/l	1	5
Phenol	12/20/11	N.D.	ug/l	0.5	1
bis(2-Chloroethyl)ether	12/20/11	N.D.	ug/l	0.5	1
2-Chlorophenol	12/20/11	N.D.	ug/l	0.5	1
Benzyl alcohol	12/20/11	N.D.	ug/l	5	15
2-Methylphenol	12/20/11	N.D.	ug/l	0.5	1
4-Methylphenol	12/20/11	N.D.	ug/l	0.5	1
N-Nitroso-di-n-propylamine	12/20/11	N.D.	ug/l	0.5	1
Hexachloroethane	12/20/11	N.D.	ug/l	1	5
Nitrobenzene	12/20/11	N.D.	ug/l	0.5	1
Isophorone	12/20/11	N.D.	ug/l	0.5	1
2-Nitrophenol	12/20/11	N.D.	ug/l	0.5	1
2,4-Dimethylphenol	12/20/11	N.D.	ug/l	0.5	1
bis(2-Chloroethoxy)methane	12/20/11	N.D.	ug/l	0.5	1
2,4-Dichlorophenol	12/20/11	N.D.	ug/l	0.5	1
4-Chloroaniline	12/20/11	N.D.	ug/l	0.5	1
4-Chloro-3-methylphenol	12/20/11	N.D.	ug/l	0.5	1
2-Methylnaphthalene	12/20/11	N.D.	ug/l	0.1	0.5
Hexachlorocyclopentadiene	12/20/11	N.D.	ug/l	5	15
2,4,6-Trichlorophenol	12/20/11	N.D.	ug/l	0.5	1
2,4,5-Trichlorophenol	12/20/11	N.D.	ug/l	0.5	1
1,1'-Biphenyl	12/20/11	N.D.	ug/l	0.5	1
2-Chloronaphthalene	12/20/11	N.D.	ug/l	0.4	1
2-Nitroaniline	12/20/11	N.D.	ug/l	0.5	1
Dimethylphthalate	12/20/11	N.D.	ug/l	2	5
2,6-Dinitrotoluene	12/20/11	N.D.	ug/l	0.5	1
Acenaphthylene	12/20/11	N.D.	ug/l	0.1	0.5
3-Nitroaniline	12/20/11	N.D.	ug/l	0.5	1
Acenaphthene	12/20/11	N.D.	ug/l	0.1	0.5
2,4-Dinitrophenol	12/20/11	N.D.	ug/l	10	30
4-Nitrophenol	12/20/11	N.D.	ug/l	10	30
2,4-Dinitrotoluene	12/20/11	N.D.	ug/l	1	5
Dibenzofuran	12/20/11	N.D.	ug/l	0.5	1
Diethylphthalate	12/20/11	N.D.	ug/l	2	5
Fluorene	12/20/11	N.D.	ug/l	0.1	0.5
4-Chlorophenyl-phenylether	12/20/11	N.D.	ug/l	0.5	1
4-Nitroaniline	12/20/11	N.D.	ug/l	0.5	1
4,6-Dinitro-2-methylphenol	12/20/11	N.D.	ug/l	5	15
N-Nitrosodiphenylamine	12/20/11	N.D.	ug/l	0.5	1
4-Bromophenyl-phenylether	12/20/11	N.D.	ug/l	0.5	1
Hexachlorobenzene	12/20/11	N.D.	ug/l	0.1	0.5
Pentachlorophenol	12/20/11	N.D.	ug/l	1	5
Phenanthrene	12/20/11	N.D.	ug/l	0.1	0.5
Anthracene	12/20/11	N.D.	ug/l	0.1	0.5
Carbazole	12/20/11	N.D.	ug/l	0.5	1

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Fraction: Semivolatiles by GC/MS

11353WAA026 / SBLKWA353 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Di-n-butylphthalate	12/20/11	N.D.	ug/l	2	5
Fluoranthene	12/20/11	N.D.	ug/l	0.1	0.5
Pyrene	12/20/11	N.D.	ug/l	0.1	0.5
Butylbenzylphthalate	12/20/11	N.D.	ug/l	2	5
bis(2-Ethylhexyl)phthalate	12/20/11	N.D.	ug/l	2	5
3,3'-Dichlorobenzidine	12/20/11	N.D.	ug/l	2	5
Benzo(a)anthracene	12/20/11	N.D.	ug/l	0.1	0.5
Chrysene	12/20/11	N.D.	ug/l	0.1	0.5
Di-n-octylphthalate	12/20/11	N.D.	ug/l	2	5
Benzo(b)fluoranthene	12/20/11	N.D.	ug/l	0.1	0.5
Benzo(k)fluoranthene	12/20/11	N.D.	ug/l	0.1	0.5
Benzo(a)pyrene	12/20/11	N.D.	ug/l	0.1	0.5
Indeno(1,2,3-cd)pyrene	12/20/11	N.D.	ug/l	0.1	0.5
Dibenz(a,h)anthracene	12/20/11	N.D.	ug/l	0.1	0.5
Benzo(g,h,i)perylene	12/20/11	N.D.	ug/l	0.1	0.5

DHR08 8177

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Quality Control Summary
Surrogates
GC/MS Semivolatiles
SDG: DHR08
Matrix: SOLID

Fraction: Semivolatiles by GC/MS

11349SLA026	Phenol-d6		2-Fluorophenol		2,4,6-Tribromophenol		Nitrobenzene-d5		2-Fluorobiphenyl		Terphenyl-d14	
	Spike Added	6666.667 ug/kg	Spike Added	6666.667 ug/kg	Spike Added	6666.667 ug/kg	Spike Added	3333.333 ug/kg	Spike Added	3333.333 ug/kg	Spike Added	3333.333 ug/kg
Sample	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits
SBLKLA349	90	42 - 130	94	39 - 136	92	28 - 139	89	45 - 123	94	56 - 121	103	43 - 124
349LALCS	97	42 - 130	100	39 - 136	92	28 - 139	93	45 - 123	98	56 - 121	102	43 - 124
6499034	88	42 - 130	89	39 - 136	81	28 - 139	85	45 - 123	90	56 - 121	95	43 - 124
6499035	90	42 - 130	93	39 - 136	83	28 - 139	86	45 - 123	91	56 - 121	98	43 - 124
6499036 MS	93	42 - 130	96	39 - 136	83	28 - 139	89	45 - 123	94	56 - 121	99	43 - 124
6499037 MSD	89	42 - 130	92	39 - 136	80	28 - 139	86	45 - 123	90	56 - 121	95	43 - 124
6499039	90	42 - 130	92	39 - 136	85	28 - 139	86	45 - 123	90	56 - 121	99	43 - 124
6499040	89	42 - 130	90	39 - 136	85	28 - 139	83	45 - 123	90	56 - 121	100	43 - 124
6499041	85	42 - 130	87	39 - 136	79	28 - 139	79	45 - 123	84	56 - 121	92	43 - 124
6499042	89	42 - 130	90	39 - 136	81	28 - 139	82	45 - 123	87	56 - 121	97	43 - 124
6499043	88	42 - 130	89	39 - 136	83	28 - 139	82	45 - 123	90	56 - 121	99	43 - 124
6499044	89	42 - 130	90	39 - 136	81	28 - 139	81	45 - 123	90	56 - 121	95	43 - 124
6499045	85	42 - 130	88	39 - 136	82	28 - 139	81	45 - 123	88	56 - 121	97	43 - 124
6499046	89	42 - 130	92	39 - 136	83	28 - 139	82	45 - 123	91	56 - 121	94	43 - 124
6499047	93	42 - 130	96	39 - 136	84	28 - 139	87	45 - 123	93	56 - 121	102	43 - 124
6499048	87	42 - 130	91	39 - 136	82	28 - 139	82	45 - 123	89	56 - 121	98	43 - 124
6499049	89	42 - 130	93	39 - 136	83	28 - 139	84	45 - 123	92	56 - 121	98	43 - 124
6499050	88	42 - 130	92	39 - 136	78	28 - 139	84	45 - 123	89	56 - 121	97	43 - 124
6499051	87	42 - 130	90	39 - 136	84	28 - 139	82	45 - 123	91	56 - 121	98	43 - 124
6499052	86	42 - 130	92	39 - 136	81	28 - 139	83	45 - 123	90	56 - 121	98	43 - 124

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Quality Control Summary
Surrogates
GC/MS Semivolatiles
SDG: DHR08
Matrix: LIQUID

Fraction: Semivolatiles by GC/MS

11353WAA026	2-Fluorophenol		Phenol-d6		2,4,6-Tribromophenol		Nitrobenzene-d5		2-Fluorobiphenyl		Terphenyl-d14	
	Spike Added	200 ug/l	Spike Added	200 ug/l	Spike Added	200 ug/l	Spike Added	100 ug/l	Spike Added	100 ug/l	Spike Added	100 ug/l
Sample	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits
SBLKWA353	49	10 - 98	35	10 - 74	94	22 - 150	95	52 - 120	98	63 - 114	114	34 - 118
353WALCS	57	10 - 98	43	10 - 74	92	22 - 150	97	52 - 120	100	63 - 114	109	34 - 118
353WALCSD	55	10 - 98	41	10 - 74	91	22 - 150	98	52 - 120	99	63 - 114	107	34 - 118
6499033	43	10 - 98	25	10 - 74	96	22 - 150	96	52 - 120	98	63 - 114	113	34 - 118

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Quality Control Summary
Matrix Spike/Matrix Spike Duplicate

SDG: DHR08
Matrix: SOLID

GC/MS Semivolatiles

Fraction: Semivolatiles by GC/MS

UNSPK: 6499035 MS: 6499036 MSD: 6499037 Analyte	Batch: 11349SLA026 (Sample numbers: 6499034-6499037, 6499039-6499052)								
	Spike Added ug/kg	Unspiked Conc ug/kg	MS Conc ug/kg	MSD Conc ug/kg	MS %Rec	MSD %Rec	%Rec Limits	%RPD	%RPD Limits
1,4-Dioxane	1666.67	N.D.	897.37	883.74	54	53	31-77	2	30
Phenol	1666.67	N.D.	1553.87	1512.06	93	91	39-151	3	30
bis(2-Chloroethyl)ether	1666.67	N.D.	1575.97	1525.02	95	92	45-139	3	30
2-Chlorophenol	1666.67	N.D.	1608.46	1546.78	97	93	29-151	4	30
Benzyl alcohol	1666.67	N.D.	1580.4	1517.18	95	91	63-128	4	30
2-Methylphenol	1666.67	N.D.	1597.37	1532.66	96	92	30-145	4	30
4-Methylphenol	1666.67	N.D.	1646.48	1595.96	99	96	36-149	3	30
N-Nitroso-di-n-propylamine	1666.67	N.D.	1450.13	1405.5	87	84	46-128	3	30
Hexachloroethane	1666.67	N.D.	1498.46	1470.13	90	88	71-104	2	30
Nitrobenzene	1666.67	N.D.	1595.59	1541.46	96	92	37-139	3	30
Isophorone	1666.67	N.D.	1586.2	1508.6	95	91	54-122	5	30
2-Nitrophenol	1666.67	N.D.	1542.57	1496.74	93	90	25-151	3	30
2,4-Dimethylphenol	1666.67	N.D.	1563.47	1492.29	94	90	27-143	5	30
bis(2-Chloroethoxy)methane	1666.67	N.D.	1614.92	1567.	97	94	44-132	3	30
2,4-Dichlorophenol	1666.67	N.D.	1622.32	1549.73	97	93	35-142	5	30
4-Chloroaniline	1666.67	N.D.	1285.79	1165.03	77	70	11-114	10	30
4-Chloro-3-methylphenol	1666.67	N.D.	1566.48	1462.27	94	88	33-144	7	30
2-Methylnaphthalene	1666.67	N.D.	1561.14	1476.24	94	89	23-141	6	30
Hexachlorocyclopentadiene	3333.33	N.D.	3471.47	3441.51	104	103	10-153	1	30
2,4,6-Trichlorophenol	1666.67	N.D.	1615.39	1559.01	97	94	41-142	4	30
2,4,5-Trichlorophenol	1666.67	N.D.	1612.86	1544.76	97	93	25-143	4	30
1,1'-Biphenyl	1666.67	N.D.	1596.4	1554.49	96	93	51-127	3	30
2-Chloronaphthalene	1666.67	N.D.	1854.74	1795.7	111	108	22-131	3	30
2-Nitroaniline	1666.67	N.D.	1595.53	1536.41	96	92	46-146	4	30
Dimethylphthalate	1666.67	N.D.	1605.13	1530.59	96	92	26-141	5	30
2,6-Dinitrotoluene	1666.67	N.D.	1628.12	1561.45	98	94	44-140	4	30
Acenaphthylene	1666.67	N.D.	1708.65	1649.64	103	99	47-137	4	30
3-Nitroaniline	1666.67	N.D.	1520.92	1436.15	91	86	34-134	6	30
Acenaphthene	1666.67	N.D.	1577.01	1501.57	95	90	41-135	5	30
2,4-Dinitrophenol	3333.33	N.D.	2774.16	2666.91	83	80	20-143	4	30
4-Nitrophenol	1666.67	N.D.	1333.11	1274.21	80	76	15-149	5	30
2,4-Dinitrotoluene	1666.67	N.D.	1581.19	1518.44	95	91	27-147	4	30
Dibenzofuran	1666.67	N.D.	1571.43	1499.74	94	90	38-148	5	30
Diethylphthalate	1666.67	N.D.	1561.56	1500.4	94	90	32-137	4	30
Fluorene	1666.67	N.D.	1593.02	1531.94	96	92	35-140	4	30
4-Chlorophenyl-phenylether	1666.67	N.D.	1579.69	1530.42	95	92	42-130	3	30
4-Nitroaniline	1666.67	N.D.	1249.85	1184.11	75	71	26-124	5	30
4,6-Dinitro-2-methylphenol	1666.67	N.D.	1530.49	1483.15	92	89	10-148	3	30
N-Nitrosodiphenylamine	1666.67	N.D.	1622.24	1601.35	97	96	33-148	1	30
4-Bromophenyl-phenylether	1666.67	N.D.	1603.3	1553.14	96	93	46-131	3	30
Hexachlorobenzene	1666.67	N.D.	1552.13	1506.16	93	90	53-137	3	30
Pentachlorophenol	1666.67	N.D.	1504.13	1440.17	90	86	23-145	4	30

Results are being reported on an as received basis.

GC/MS Semivolatiles

Fraction: Semivolatiles by GC/MS

UNSPK: 6499035 MS: 6499036 MSD: 6499037 Analyte	Batch: **11349SLA026** (Sample numbers: 6499034-6499037, 6499039-6499052)								
	Spike Added ug/kg	Unspiked Conc ug/kg	MS Conc ug/kg	MSD Conc ug/kg	MS %Rec	MSD %Rec	%Rec Limits	%RPD	%RPD Limits
Phenanthrene	1666.67	N.D.	1578.01	1508.75	95	91	34-147	4	30
Anthracene	1666.67	N.D.	1596.22	1535.12	96	92	40-147	4	30
Carbazole	1666.67	N.D.	1542.05	1486.59	93	89	36-148	4	30
Di-n-butylphthalate	1666.67	N.D.	1598.35	1530.87	96	92	32-139	4	30
Fluoranthene	1666.67	N.D.	1564.87	1500.33	94	90	48-122	4	30
Pyrene	1666.67	N.D.	1559.25	1496.09	94	90	76-124	4	30
Butylbenzylphthalate	1666.67	N.D.	1612.75	1552.07	97	93	26-161	4	30
bis(2-Ethylhexyl)phthalate	1666.67	N.D.	1594.45	1549.74	96	93	38-151	3	30
3,3'-Dichlorobenzidine	1666.67	N.D.	1185.51	1139.81	71	68	10-143	4	30
Benzo(a)anthracene	1666.67	N.D.	1525.42	1495.04	92	90	32-150	2	30
Chrysene	1666.67	N.D.	1540.05	1484.82	92	89	76-114	4	30
Di-n-octylphthalate	1666.67	N.D.	1786.99	1693.05	107	102	43-149	5	30
Benzo(b)fluoranthene	1666.67	3.33	1702.93	1617.74	102	97	53-131	5	30
Benzo(k)fluoranthene	1666.67	N.D.	1665.65	1593.23	100	96	61-131	4	30
Benzo(a)pyrene	1666.67	N.D.	1681.96	1615.85	101	97	57-129	4	30
Indeno(1,2,3-cd)pyrene	1666.67	N.D.	1656.85	1605.68	99	96	61-123	3	30
Dibenz(a,h)anthracene	1666.67	N.D.	1641.37	1600.38	98	96	37-151	3	30
Benzo(g,h,i)perylene	1666.67	N.D.	1657.45	1585.88	99	95	60-123	4	30

DHR08 0161

Results are being reported on an as received basis.

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: DHR08
Matrix: SOLID

GC/MS Semivolatiles

Fraction: Semivolatiles by GC/MS

LCS: 349LALCS	Batch: **11349SLA026** (Sample numbers: 6499034-6499037, 6499039-6499052)							
Analyte	Spike Added ug/kg	LCS Conc ug/kg	LCSD Conc ug/kg	LCS %Rec	LCSD %Rec	%Rec Limits	%RPD	%RPD Limits
1,4-Dioxane	1666.67	966.79		58		38-75		
Phenol	1666.67	1622.77		97		74-115		
bis(2-Chloroethyl)ether	1666.67	1602.09		96		77-115		
2-Chlorophenol	1666.67	1638.9		98		83-119		
Benzyl alcohol	1666.67	1626.8		98		68-111		
2-Methylphenol	1666.67	1662.7		100		80-119		
4-Methylphenol	1666.67	1719.31		103		74-116		
N-Nitroso-di-n-propylamine	1666.67	1490.05		89		70-113		
Hexachloroethane	1666.67	1526.68		92		76-109		
Nitrobenzene	1666.67	1628.99		98		78-122		
Isophorone	1666.67	1622.77		97		72-107		
2-Nitrophenol	1666.67	1601.41		96		81-114		
2,4-Dimethylphenol	1666.67	1654.84		99		83-120		
bis(2-Chloroethoxy)methane	1666.67	1650.16		99		82-113		
2,4-Dichlorophenol	1666.67	1665.86		100		87-117		
4-Chloroaniline	1666.67	1293.83		78		10-97		
4-Chloro-3-methylphenol	1666.67	1617.48		97		74-119		
2-Methylnaphthalene	1666.67	1586.77		95		79-110		
Hexachlorocyclopentadiene	3333.33	3691.67		111		64-127		
2,4,6-Trichlorophenol	1666.67	1701.04		102		88-114		
2,4,5-Trichlorophenol	1666.67	1702.23		102		84-109		
1,1'-Biphenyl	1666.67	1648.13		99		82-106		
2-Chloronaphthalene	1666.67	1908.49		115		50-117		
2-Nitroaniline	1666.67	1684.42		101		83-118		
Dimethylphthalate	1666.67	1683.55		101		85-111		
2,6-Dinitrotoluene	1666.67	1737.08		104		79-115		
Acenaphthylene	1666.67	1769.78		106		68-120		
3-Nitroaniline	1666.67	1617.58		97		66-114		
Acenaphthene	1666.67	1634.43		98		83-111		
2,4-Dinitrophenol	3333.33	2951.64		89		39-126		
4-Nitrophenol	1666.67	1479.11		89		57-131		
2,4-Dinitrotoluene	1666.67	1697.06		102		80-116		
Dibenzofuran	1666.67	1637.61		98		85-110		
Diethylphthalate	1666.67	1660.88		100		82-113		
Fluorene	1666.67	1679.39		101		81-117		
4-Chlorophenyl-phenylether	1666.67	1650.78		99		79-110		
4-Nitroaniline	1666.67	1274.92		76		52-92		
4,6-Dinitro-2-methylphenol	1666.67	1595.15		96		60-113		
N-Nitrosodiphenylamine	1666.67	1675.64		101		86-112		
4-Bromophenyl-phenylether	1666.67	1599.82		96		79-117		
Hexachlorobenzene	1666.67	1585.65		95		79-115		
Pentachlorophenol	1666.67	1594.92		96		50-133		

GC/MS Semivolatiles

Fraction: Semivolatiles by GC/MS

LCS: 349LALCS	Batch: **11349SLA026** (Sample numbers: 6499034-6499037, 6499039-6499052)							
Analyte	**Spike Added ug/kg**	**LCS Conc ug/kg**	**LCSD Conc ug/kg**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Phenanthrene	1666.67	1606.15		96		83-109		
Anthracene	1666.67	1634.58		98		83-111		
Carbazole	1666.67	1600.98		96		83-111		
Di-n-butylphthalate	1666.67	1648.99		99		79-112		
Fluoranthene	1666.67	1626.58		98		80-113		
Pyrene	1666.67	1599.83		96		80-121		
Butylbenzylphthalate	1666.67	1675.7		101		77-125		
bis(2-Ethylhexyl)phthalate	1666.67	1671.35		100		75-124		
3,3'-Dichlorobenzidine	1666.67	1185.54		71		17-116		
Benzo(a)anthracene	1666.67	1619.39		97		82-111		
Chrysene	1666.67	1607.67		96		81-111		
Di-n-octylphthalate	1666.67	1771.56		106		65-141		
Benzo(b)fluoranthene	1666.67	1675.83		101		61-133		
Benzo(k)fluoranthene	1666.67	1719.85		103		71-135		
Benzo(a)pyrene	1666.67	1725.85		104		63-138		
Indeno(1,2,3-cd)pyrene	1666.67	1655.41		99		64-128		
Dibenz(a,h)anthracene	1666.67	1652.98		99		67-129		
Benzo(g,h,i)perylene	1666.67	1630.7		98		63-130		

DHR08 0183

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: DHR08
Matrix: LIQUID

GC/MS Semivolatiles

Fraction: Semivolatiles by GC/MS

LCS: 353WALCS LCSD: 353WALCSD	Batch: **11353WAA026** (Sample number: 6499033)							
Analyte	**Spike Added ug/l**	**LCS Conc ug/l**	**LCSD Conc ug/l**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
1,4-Dioxane	50	22.98	22.6	46	45	32-78	2	30
Phenol	50	23.37	23.05	47	46	21-67	1	30
bis(2-Chloroethyl)ether	50	51.83	51.38	104	103	77-108	1	30
2-Chlorophenol	50	48.23	48.19	96	96	71-114	0	30
Benzyl alcohol	50	39.46	38.73	79	77	66-97	2	30
2-Methylphenol	50	48.75	47.72	97	95	58-110	2	30
4-Methylphenol	50	45.81	44.79	92	90	49-108	2	30
N-Nitroso-di-n-propylamine	50	50.1	49.96	100	100	69-110	0	30
Hexachloroethane	50	43.68	44.6	87	89	52-113	2	30
Nitrobenzene	50	50.01	51.43	100	103	75-109	3	30
Isophorone	50	51.75	52.32	104	105	74-117	1	30
2-Nitrophenol	50	49.6	51.71	99	103	76-118	4	30
2,4-Dimethylphenol	50	50.15	50.97	100	102	72-110	2	30
bis(2-Chloroethoxy)methane	50	51.92	53.55	104	107	74-124	3	30
2,4-Dichlorophenol	50	51.65	52.09	103	104	77-117	1	30
4-Chloroaniline	50	25.38	34.96	51	70	24-128	32 *	30
4-Chloro-3-methylphenol	50	50.59	50.79	101	102	70-123	0	30
2-Methylnaphthalene	50	49.71	50.63	99	101	69-108	2	30
Hexachlorocyclopentadiene	100	82.01	84.04	82	84	36-118	2	30
2,4,6-Trichlorophenol	50	50.8	51.24	102	102	76-120	1	30
2,4,5-Trichlorophenol	50	50.8	51.06	102	102	79-107	1	30
1,1'-Biphenyl	50	49.97	50.14	100	100	80-109	0	30
2-Chloronaphthalene	50	48.83	49.38	98	99	54-132	1	30
2-Nitroaniline	50	52.91	51.89	106	104	75-120	2	30
Dimethylphthalate	50	51.83	51.64	104	103	39-126	0	30
2,6-Dinitrotoluene	50	52.94	53.11	106	106	76-118	0	30
Acenaphthylene	50	54.87	54.57	110	109	80-122	1	30
3-Nitroaniline	50	48.32	48.84	97	98	74-113	1	30
Acenaphthene	50	50.9	50.45	102	101	75-114	1	30
2,4-Dinitrophenol	100	91.27	91.48	91	91	52-131	0	30
4-Nitrophenol	50	19.25	18.1	38	36	16-78	6	30
2,4-Dinitrotoluene	50	52.46	52.55	105	105	76-119	0	30
Dibenzofuran	50	50.87	50.6	102	101	75-117	1	30
Diethylphthalate	50	51.96	52.01	104	104	66-116	0	30
Fluorene	50	52.59	51.99	105	104	76-116	1	30
4-Chlorophenyl-phenylether	50	51.2	50.99	102	102	77-114	0	30
4-Nitroaniline	50	33.38	34.16	67	68	59-100	2	30
4,6-Dinitro-2-methylphenol	50	49.02	51.2	98	102	65-126	4	30
N-Nitrosodiphenylamine	50	51.61	52.67	103	105	67-136	2	30
4-Bromophenyl-phenylether	50	50.34	51.51	101	103	75-115	2	30
Hexachlorobenzene	50	48.62	49.3	97	99	75-119	1	30
Pentachlorophenol	50	46.6	47.72	93	95	53-110	2	30

GC/MS Semivolatiles

Fraction: Semivolatiles by GC/MS

LCS: 353WALCS LCSD: 353WALCSD	Batch: **11353WAA026** (Sample number: 6499033)							
Analyte	**Spike Added ug/l**	**LCS Conc ug/l**	**LCSD Conc ug/l**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Phenanthrene	50	49.82	51.02	100	102	76-113	2	30
Anthracene	50	50.84	52.09	102	104	76-115	2	30
Carbazole	50	49.36	51.1	99	102	75-120	3	30
Di-n-butylphthalate	50	50.97	53.04	102	106	76-115	4	30
Fluoranthene	50	49.6	51.65	99	103	76-119	4	30
Pyrene	50	50.3	49.71	101	99	75-119	1	30
Butylbenzylphthalate	50	52.03	52.23	104	104	77-115	0	30
bis(2-Ethylhexyl)phthalate	50	51.07	51.6	102	103	78-117	1	30
3,3'-Dichlorobenzidine	50	28.25	33.29	56	67	37-117	16	30
Benzo(a)anthracene	50	48.7	48.64	97	97	75-116	0	30
Chrysene	50	50.37	50.64	101	101	76-116	1	30
Di-n-octylphthalate	50	56.83	57.63	114	115	68-128	1	30
Benzo(b)fluoranthene	50	53.64	54.46	107	109	66-125	2	30
Benzo(k)fluoranthene	50	54.88	54.52	110	109	66-131	1	30
Benzo(a)pyrene	50	54.06	54.24	108	108	64-126	0	30
Indeno(1,2,3-cd)pyrene	50	52.24	52.52	104	105	69-121	1	30
Dibenz(a,h)anthracene	50	52.23	52.93	104	106	67-131	1	30
Benzo(g,h,i)perylene	50	51.7	52.49	103	105	66-132	2	30

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID: ol0410.d DFTPP Injection Date: 12/08/11

Instrument ID: HP09910 DFTPP Injection Time: 16:14

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	47.1
68	Less than 2.0% of mass 69	0.86 (1.76)1
69	Mass 69 relative abundance	48.9
70	Less than 2.0% of mass 69	0.35 (0.71)1
127	40.0 - 60.0% of mass 198	51.6
197	Less than 1.0% of mass 198	0.21
198	Base peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.47
275	10.0 - 30.0% of mass 198	21.2
365	Greater than 1.00% of mass 198	1.89
441	Present, and less than mass 443	7.24
442	Greater than 40.0 % of mass 198	49.5
443	17.0 - 23.0% of mass 442	9.69 (19.6)2

1-Value is % mass 69 2-Value is % mass of 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	STD3321 - SSTD30	ol0411a.d	12/08/11	16:53
02	STD3321 - SSTD.5	ol0412.d	12/08/11	17:20
03	STD3321 - SSTD120	ol0413.d	12/08/11	17:46
04	STD3321 - SSTD80	ol0414.d	12/08/11	18:11
05	STD3321 - SSTD50	ol0415.d	12/08/11	18:36
06	STD3321 - SSTD15	ol0416.d	12/08/11	19:01
07	STD3321 - SSTD5	ol0417.d	12/08/11	19:26
08	STD3321 - SSTD1	ol0418.d	12/08/11	19:51
09	MDLSTD3321 - MDL0.5	ol0419.d	12/08/11	20:17
10	MDLSTD3321 - MDL0.1	ol0420.d	12/08/11	20:42
11	ICV2691 - ICV050	ol0421.d	12/08/11	21:07
12	BASICV2971 - BASICV050	ol0422.d	12/08/11	21:33
13	BENZ3421 - SSTD50	ol0423.d	12/08/11	21:58
14	BENZ3421 - SSTD120	ol0424.d	12/08/11	22:23
15	BENZ3421 - SSTD80	ol0425.d	12/08/11	22:48
16	BENZ3421 - SSTD30	ol0426.d	12/08/11	23:14
17	BENZ3421 - SSTD15	ol0427.d	12/08/11	23:39
18	BENZ3421 - SSTD5	ol0428.d	12/09/11	00:04

FORM V SV

DHR88 8186

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID: ol0410.d DFTPP Injection Date: 12/08/11

Instrument ID: HP09910 DFTPP Injection Time: 16:14

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	47.1
68	Less than 2.0% of mass 69	0.86 (1.76)1
69	Mass 69 relative abundance	48.9
70	Less than 2.0% of mass 69	0.35 (0.71)1
127	40.0 - 60.0% of mass 198	51.6
197	Less than 1.0% of mass 198	0.21
198	Base peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.47
275	10.0 - 30.0% of mass 198	21.2
365	Greater than 1.00% of mass 198	1.89
441	Present, and less than mass 443	7.24
442	Greater than 40.0 % of mass 198	49.5
443	17.0 - 23.0% of mass 442	9.69 (19.6)2

1-Value is % mass 69 2-Value is % mass of 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
19	BENZMDL3421 - MDL001	ol0429.d	12/09/11	00:29
20	BENZICV3421 - ICV050	ol0430.d	12/09/11	00:54

DHR88 8187

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID: o10740.d DFTPP Injection Date: 12/16/11

Instrument ID: HP09910 DFTPP Injection Time: 02:01

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	46.4
68	Less than 2.0% of mass 69	0.62 (1.28)1
69	Mass 69 relative abundance	48.8
70	Less than 2.0% of mass 69	0.12 (0.25)1
127	40.0 - 60.0% of mass 198	50.8
197	Less than 1.0% of mass 198	0.53
198	Base peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.53
275	10.0 - 30.0% of mass 198	22.3
365	Greater than 1.00% of mass 198	1.86
441	Present, and less than mass 443	6.76
442	Greater than 40.0 % of mass 198	48.9
443	17.0 - 23.0% of mass 442	9.51 (19.5)2

1-Value is % mass 69 2-Value is % mass of 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	STD3461 - SSTD30	o10741.d	12/16/11	02:15
02	SBLKLD349	o10742.d	12/16/11	02:40
03	349LDLCS	o10743.d	12/16/11	03:06
04	349LDLCSD	o10744.d	12/16/11	03:32
05	SBLKLA349	o10748.d	12/16/11	03:58
06	349LALCS	o10749.d	12/16/11	04:23
07	6477411	o10745.d	12/16/11	04:49
08	6477411MS	o10746.d	12/16/11	05:14
09	6477411MSD	o10747.d	12/16/11	05:40
10	6499035	o10750.d	12/16/11	06:05
11	6499036MS	o10751.d	12/16/11	06:30
12	6499037MSD	o10752.d	12/16/11	06:56
13	6499034	o10753.d	12/16/11	07:21
14	6499039	o10754.d	12/16/11	07:46
15	6499040	o10755.d	12/16/11	08:12
16	6499041	o10756.d	12/16/11	08:37
17	6499042	o10757.d	12/16/11	09:03
18	6499043	o10758.d	12/16/11	09:28

DHR66 8138

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID: o10740.d DFTPP Injection Date: 12/16/11

Instrument ID: HP09910 DFTPP Injection Time: 02:01

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	46.4
68	Less than 2.0% of mass 69	0.62 (1.28)1
69	Mass 69 relative abundance	48.8
70	Less than 2.0% of mass 69	0.12 (0.25)1
127	40.0 - 60.0% of mass 198	50.8
197	Less than 1.0% of mass 198	0.53
198	Base peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.53
275	10.0 - 30.0% of mass 198	22.3
365	Greater than 1.00% of mass 198	1.86
441	Present, and less than mass 443	6.76
442	Greater than 40.0 % of mass 198	48.9
443	17.0 - 23.0% of mass 442	9.51 (19.5)2

1-Value is % mass 69 2-Value is % mass of 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
19	6499044	o10759.d	12/16/11	09:54
20	6499045	o10760.d	12/16/11	10:20
21	6499046	o10761.d	12/16/11	10:45
22	6499047	o10762.d	12/16/11	11:11
23	6499048	o10763.d	12/16/11	11:36
24	6499049	o10764.d	12/16/11	12:02
25	6499050	o10765.d	12/16/11	12:26
26	6499051	o10766.d	12/16/11	12:51
27	6499052	o10767.d	12/16/11	13:17

FORM V SV

DW868 6189

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID: ol0870z.d DFTPP Injection Date: 12/20/11

Instrument ID: HP09910 DFTPP Injection Time: 15:34

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	46.3
68	Less than 2.0% of mass 69	0.82 (1.7)1
69	Mass 69 relative abundance	48.5
70	Less than 2.0% of mass 69	0.29 (0.61)1
127	40.0 - 60.0% of mass 198	52.1
197	Less than 1.0% of mass 198	0.67
198	Base peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	7.03
275	10.0 - 30.0% of mass 198	21.6
365	Greater than 1.00% of mass 198	1.81
441	Present, and less than mass 443	6.29
442	Greater than 40.0 % of mass 198	43.6
443	17.0 - 23.0% of mass 442	8.58 (19.7)2

1-Value is % mass 69 2-Value is % mass of 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	STD3461 - SSTD30	ol0871.d	12/20/11	15:47
02	BAS3151 - SSTD50	ol0872.d	12/20/11	16:12
03	DAT3491 - SSTD50	ol0873.d	12/20/11	16:37
04	SBLKWA353	ol0874.d	12/20/11	17:02
05	353WALCS	ol0875.d	12/20/11	17:28
06	353WALCSD	ol0876.d	12/20/11	17:53
07	6498981	ol0877.d	12/20/11	18:18
08	6498983	ol0878.d	12/20/11	18:43
09	6499033	ol0879.d	12/20/11	19:09
10	6500129	ol0880.d	12/20/11	19:34
11	6500130	ol0881.d	12/20/11	19:59
12	6500131	ol0882.d	12/20/11	20:24
13	6500133	ol0883.d	12/20/11	20:50
14	6500134	ol0884.d	12/20/11	21:15
15	6500144	ol0885.d	12/20/11	21:40
16	6500552	ol0886.d	12/20/11	22:05
17	6500839	ol0887.d	12/20/11	22:30
18	6500840	ol0888.d	12/20/11	22:56

FORM V SV

DNR08 6198

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID: ol0870z.d DFTPP Injection Date: 12/20/11

Instrument ID: HP09910 DFTPP Injection Time: 15:34

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	46.3
68	Less than 2.0% of mass 69	0.82 (1.7)1
69	Mass 69 relative abundance	48.5
70	Less than 2.0% of mass 69	0.29 (0.61)1
127	40.0 - 60.0% of mass 198	52.1
197	Less than 1.0% of mass 198	0.67
198	Base peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	7.03
275	10.0 - 30.0% of mass 198	21.6
365	Greater than 1.00% of mass 198	1.81
441	Present, and less than mass 443	6.29
442	Greater than 40.0 % of mass 198	43.6
443	17.0 - 23.0% of mass 442	8.58 (19.7)2

1-Value is % mass 69 2-Value is % mass of 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
19	6500843	ol0891.d	12/21/11	00:12

FORM V SV

DHR66 #191

6B

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09910 Calibration Date(s): 12/08/11 12/08/11

Calibration Times: 16:53 19:51

Min $\overline{RRF}$ for SPCC(#) = 0.050 Max %RSD for CCC(*) = 30%

LAB FILE ID:RRF0.5 = ol0412.d RRF1 = ol0418.d RRF5 = ol0417.d RRF15 = ol0416.d
RRF30 = ol0411a.d RRF50 = ol0415.d RRF80 = ol0414.d RRF120 = ol0413.d

		COMPOUND	RRF0.5	RRF1	RRF5	RRF15	RRF30	RRF50	RRF80	RRF120	$\overline{RRF}$	% RSD	CAL. METHOD	
		1,4-Dioxane			0.674	0.616	0.618	0.616	0.609	0.614	0.625	4	AVG	
		N-Nitrosodimethylamine			1.069	1.010	1.103	1.139	1.107	1.115	1.090	4	AVG	
		Pyridine			2.030	1.612	1.695	1.824	1.781	1.799	1.790	8	AVG	
		2-Picoline			1.998	1.847	1.899	1.910	1.867	1.859	1.897	3	AVG	
		N-Nitrosomethylethylamine			0.979	0.895	0.928	0.910	0.890	0.879	0.914	4	AVG	
		Methyl methanesulfonate			0.958	0.920	0.959	0.939	0.936	0.933	0.941	2	AVG	
		N-Nitrosodiethylamine		0.875	0.866	0.843	0.885	0.868	0.873	0.856	0.867	2	AVG	
		Ethyl methanesulfonate		0.818	0.849	0.829	0.849	0.831	0.838	0.837	0.836	1	AVG	
		Aniline		2.816	2.836	2.764	2.903	2.892	2.827	2.823	2.837	2	AVG	
	*	Phenol		2.411	2.441	2.411	2.486	2.559	2.492	2.456	2.465	2	AVG	*
		bis(2-Chloroethyl)ether		1.905	1.773	1.720	1.754	1.787	1.730	1.761	1.776	3	AVG	
		2-Chlorophenol		1.513	1.602	1.529	1.591	1.609	1.553	1.562	1.566	2	AVG	
		1,3-Dichlorobenzene		1.672	1.633	1.580	1.605	1.621	1.561	1.555	1.604	3	AVG	
	*	1,4-Dichlorobenzene		1.800	1.694	1.618	1.652	1.663	1.612	1.604	1.663	4	AVG	*
		Benzyl alcohol			1.141	1.162	1.177	1.199	1.186	1.177	1.174	2	AVG	
		1,2-Dichlorobenzene		1.597	1.610	1.522	1.558	1.569	1.522	1.500	1.554	3	AVG	
		2-Methylphenol		1.426	1.620	1.592	1.653	1.656	1.602	1.592	1.592	5	AVG	
		2,2'-oxybis(1-Chloropropane)		2.823	2.748	2.681	2.734	2.673	2.589	2.592	2.692	3	AVG	
		bis(2-Chloroisopropyl)ether		2.823	2.748	2.681	2.734	2.673	2.589	2.592	2.692	3	AVG	
		N-Nitrosopyrrolidine		0.910	1.029	1.001	1.035	1.006	1.012	0.982	0.996	4	AVG	
		Acetophenone		2.262	2.414	2.453	2.413	2.375	2.315	2.336	2.367	3	AVG	
	#	N-Nitroso-di-n-propylamine		1.759	1.587	1.494	1.529	1.471	1.466	1.426	1.533	7	AVG	#
		N-Nitrosomorpholine			1.168	1.131	1.241	1.209	1.187	1.166	1.184	3	AVG	
		4-Methylphenol		1.835	1.770	1.743	1.765	1.755	1.735	1.853	1.779	3	AVG	
		o-Toluidine		2.744	2.883	2.766	2.877	2.840	2.813	2.747	2.810	2	AVG	
		Hexachloroethane			0.595	0.592	0.605	0.598	0.590	0.591	0.595	1	AVG	
		Nitrobenzene		0.458	0.434	0.419	0.436	0.436	0.430	0.432	0.435	3	AVG	
		N-Nitrosopiperidine		0.203	0.209	0.203	0.206	0.201	0.202	0.199	0.203	2	AVG	
		Isophorone		0.900	0.851	0.826	0.839	0.826	0.819	0.818	0.840	3	AVG	
	*	2-Nitrophenol		0.196	0.188	0.185	0.200	0.200	0.199	0.200	0.196	3	AVG	*
		2,4-Dimethylphenol		0.408	0.392	0.392	0.407	0.401	0.396	0.391	0.398	2	AVG	
		O,O,O-triethylphosphorothioate			0.187	0.170	0.179	0.173	0.171	0.170	0.175	4	AVG	
		bis(2-Chloroethoxy)methane		0.510	0.487	0.475	0.473	0.468	0.461	0.467	0.477	3	AVG	
		Benzoic acid			0.350	0.367	0.365	0.365	0.359	0.367	0.362	2	AVG	
	*	2,4-Dichlorophenol		0.291	0.296	0.291	0.304	0.303	0.299	0.294	0.297	2	AVG	*
		1,2,4-Trichlorobenzene			0.321	0.304	0.312	0.311	0.307	0.307	0.310	2	AVG	
		Naphthalene	1.201	1.135	1.100	1.066	1.093	1.079	1.065	1.061	1.100	4	AVG	
		4-Chloroaniline		0.479	0.462	0.444	0.463	0.455	0.443	0.447	0.456	3	AVG	
		2,6-Dichlorophenol		0.306	0.304	0.291	0.300	0.295	0.288	0.286	0.296	3	AVG	
		Hexachloropropene			0.157	0.162	0.175	0.175	0.175	0.177	0.170	5	AVG	
	*	Hexachlorobutadiene		0.158	0.155	0.144	0.145	0.143	0.139	0.140	0.146	5	AVG	*
		Caprolactam			0.167	0.167	0.164	0.164	0.152	0.153	0.161	4	AVG	
		N-Nitrosodi-n-butylamine			0.435	0.412	0.317	0.313	0.302	0.297	0.346	18	2NDDEG	
	*	4-Chloro-3-methylphenol		0.361	0.379	0.372	0.375	0.372	0.366	0.361	0.370	2	AVG	*
		Safrole			0.298	0.286	0.291	0.288	0.285	0.282	0.288	2	AVG	
		2-Methylnaphthalene	0.820	0.765	0.791	0.743	0.760	0.743	0.735	0.729	0.761	4	AVG	
		1-Methylnaphthalene	0.745	0.729	0.730	0.708	0.714	0.707	0.694	0.681	0.713	3	AVG	
	#	Hexachlorocyclopentadiene			0.181	0.196	0.224	0.225	0.232	0.239	0.216	11	AVG	#
		1,2,4,5-Tetrachlorobenzene		0.482	0.464	0.438	0.454	0.454	0.443	0.441	0.453	3	AVG	
		cis-Isosafrole			0.712	0.724	0.771	0.753	0.747	0.758	0.744	3	AVG	
	*	2,4,6-Trichlorophenol		0.324	0.332	0.328	0.348	0.337	0.338	0.340	0.335	2	AVG	*
		2,4,5-Trichlorophenol		0.372	0.369	0.370	0.386	0.390	0.382	0.376	0.378	2	AVG	

MBL 12/8/11 12/8/11

DHRGD 6192

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09910 Calibration Date(s): 12/08/11 12/08/11

Calibration Times: 16:53 19:51

Min $\overline{RRF}$ for SPCC(#) = 0.050 Max %RSD for CCC(*) = 30%

LAB FILE ID:RRF0.5 = ol0412.d RRF1 = ol0418.d RRF5 = ol0417.d RRF15 = ol0416.d
RRF30 = ol0411a.d RRF50 = ol0415.d RRF80 = ol0414.d RRF120 = ol0413.d

COMPOUND		RRF0.5	RRF1	RRF5	RRF15	RRF30	RRF50	RRF80	RRF120	$\overline{RRF}$	% RSD		CAL. METHOD
trans-Isosafrole				0.537	0.520	0.546	0.529	0.528	0.528	0.531	2		AVG
Isosafrole				0.478	0.462	0.486	0.471	0.470	0.470	0.473	2		AVG
1,1'-Biphenyl			1.475	1.412	1.439	1.449	1.425	1.340	1.363	1.415	3		AVG
2-Chloronaphthalene			1.198	1.077	1.009	1.263	1.073	1.275	1.017	1.130	10		AVG
1-Chloronaphthalene			1.151	1.030	1.019	1.058	1.023	1.007	1.018	1.044	5		AVG
Diphenyl ether			0.788	0.781	0.737	0.754	0.741	0.721	0.722	0.749	4		AVG
2-Nitroaniline			0.351	0.395	0.392	0.421	0.423	0.411	0.407	0.400	6		AVG
1,4-Naphthoquinone				0.454	0.462	0.502	0.496	0.483	0.466	0.477	4		AVG
1,4-Dinitrobenzene				0.173	0.197	0.212	0.219	0.220	0.217	0.206	9		AVG
Dimethylphthalate				1.319	1.307	1.313	1.320	1.293	1.273	1.304	1		AVG
1,3-Dinitrobenzene				0.224	0.237	0.250	0.257	0.254	0.247	0.245	5		AVG
2,6-Dinitrotoluene			0.271	0.309	0.297	0.313	0.319	0.310	0.305	0.303	5		AVG
Acenaphthylene		1.840	1.718	1.726	1.696	1.743	1.729	1.703	1.678	1.729	3		AVG
3-Nitroaniline			0.358	0.348	0.361	0.371	0.376	0.368	0.359	0.363	3		AVG
Acenaphthene	*	1.350	1.235	1.178	1.130	1.155	1.144	1.116	1.110	1.177	7	*	AVG
2,4-Dinitrophenol	#			0.158	0.178	0.209	0.210	0.214	0.213	0.197	12	#	AVG
Pentachlorobenzene			0.463	0.430	0.388	0.409	0.409	0.395	0.390	0.412	6		AVG
4-Nitrophenol	#			0.170	0.190	0.195	0.219	0.214	0.207	0.199	9	#	AVG
Dibenzofuran			1.724	1.649	1.588	1.606	1.598	1.562	1.512	1.605	4		AVG
2,4-Dinitrotoluene				0.404	0.403	0.416	0.425	0.417	0.403	0.411	2		AVG
1-Naphthylamine				1.192	1.258	1.299	1.329	1.313	1.278	1.278	4		AVG
2,3,4,6-Tetrachlorophenol			0.276	0.305	0.284	0.303	0.300	0.294	0.287	0.293	4		AVG
2-Naphthylamine				1.273	1.323	1.345	1.350	1.307	1.254	1.309	3		AVG
Diethylphthalate				1.325	1.301	1.321	1.327	1.303	1.269	1.308	2		AVG
Thionazin				0.243	0.247	0.249	0.250	0.245	0.236	0.245	2		AVG
Fluorene		1.489	1.448	1.388	1.334	1.353	1.348	1.307	1.266	1.367	5		AVG
4-Chlorophenyl-phenylether			0.667	0.642	0.621	0.608	0.603	0.580	0.558	0.611	6		AVG
5-Nitro-o-toluidine			0.412	0.446	0.445	0.433	0.449	0.438	0.428	0.436	3		AVG
4-Nitroaniline			0.369	0.418	0.416	0.396	0.397	0.386	0.373	0.394	5		AVG
4,6-Dinitro-2-methylphenol				0.108	0.128	0.148	0.148	0.149	0.152	0.139	13		AVG
N-Nitrosodiphenylamine (1)	*		0.699	0.663	0.636	0.664	0.660	0.639	0.649	0.658	3	*	AVG
1,2-Diphenylhydrazine			0.892	0.879	0.854	0.913	0.890	0.878	0.907	0.888	2		AVG
Tetraethyldithiopyrophosphate				0.124	0.124	0.129	0.126	0.126	0.127	0.126	2		AVG
1,3,5-Trinitrobenzene				0.063	0.074	0.091	0.094	0.096	0.096	0.086	16		1STDEG
Diallate (peak 1)				0.431	0.411	0.433	0.424	0.419	0.428	0.424	2		AVG
Phorate			0.529	0.559	0.555	0.600	0.585	0.797	0.811	0.634	19		2NDDEG
Phenacetin			0.432	0.443	0.431	0.439	0.437	0.430	0.433	0.435	1		AVG
4-Bromophenyl-phenylether				0.193	0.190	0.190	0.189	0.184	0.189	0.189	2		AVG
Diallate (peak 2)				0.273	0.257	0.274	0.261	0.258	0.262	0.264	3		AVG
Hexachlorobenzene		0.209	0.198	0.182	0.174	0.181	0.179	0.174	0.178	0.184	7		AVG
Dimethoate				0.383	0.386	0.385	0.377	0.359	0.344	0.372	5		AVG
Diallate TRANS/CIS				0.391	0.373	0.393	0.383	0.379	0.386	0.384	2		AVG
Pentachlorophenol	*			0.119	0.123	0.137	0.135	0.131	0.131	0.129	5	*	AVG
Pentachloronitrobenzene				0.071	0.076	0.080	0.078	0.078	0.079	0.077	4		AVG
4-Aminobiphenyl			0.835	0.859	0.835	0.765	0.733	0.659	0.627	0.759	12		AVG
Pronamide			0.311	0.329	0.341	0.339	0.349	0.338	0.343	0.336	4		AVG
Dinoseb				0.138	0.172	0.213	0.214	0.217	0.224	0.197	17		1STDEG
Phenanthrene		1.328	1.263	1.152	1.124	1.125	1.134	1.098	1.107	1.166	7		AVG
Anthracene		1.312	1.196	1.176	1.149	1.164	1.156	1.135	1.144	1.179	5		AVG
Carbazole			1.223	1.160	1.120	1.127	1.124	1.091	1.094	1.134	4		AVG
Methyl parathion				0.254	0.271	0.287	0.278	0.267	0.258	0.269	5		AVG
Di-n-butylphthalate				1.298	1.314	1.358	1.361	1.338	1.341	1.335	2		AVG

(1) Cannot be separated from Diphenylamine

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09910 Calibration Date(s): 12/08/11 12/08/11

Calibration Times: 16:53 19:51

Min $\overline{RRF}$ for SPCC(#) = 0.050 Max %RSD for CCC(*) = 30%

LAB FILE ID:RRF0.5 = ol0412.d RRF1 = ol0418.d RRF5 = ol0417.d RRF15 = ol0416.d
RRF30 = ol0411a.d RRF50 = ol0415.d RRF80 = ol0414.d RRF120 = ol0413.d

	COMPOUND	RRF0.5	RRF1	RRF5	RRF15	RRF30	RRF50	RRF80	RRF120	$\overline{RRF}$	% RSD	CAL. METHOD	
	Parathion			0.145	0.156	0.175	0.171	0.169	0.170	0.164	7	AVG	
	4-Nitroquinoline-1-oxide			0.072	0.104	0.126	0.132	0.122	0.128	0.114	20	1STDEG	+
	Isodrin		0.135	0.129	0.123	0.125	0.127	0.120	0.125	0.126	4	AVG	
*	Fluoranthene	1.235	1.314	1.234	1.200	1.185	1.189	1.155	1.161	1.209	4	AVG	*
	Benzidine			0.659	0.685	0.679	0.688	0.667	0.634	0.669	3	AVG	
	Pyrene	1.287	1.303	1.142	1.058	1.081	1.066	1.044	1.048	1.129	9	AVG	
	p-Dimethylaminoazobenzene		0.194	0.206	0.207	0.223	0.220	0.215	0.216	0.211	5	AVG	
	Chlorobenzilate		0.337	0.311	0.321	0.338	0.328	0.326	0.322	0.326	3	AVG	
	3,3'-Dimethylbenzidine			0.575	0.581	0.638	0.633	0.595	0.572	0.599	5	AVG	
	Butylbenzylphthalate			0.493	0.503	0.515	0.505	0.497	0.492	0.501	2	AVG	
	2-Acetylaminofluorene			0.408	0.431	0.451	0.443	0.439	0.439	0.435	3	AVG	
	3,3'-Dichlorobenzidine			0.327	0.337	0.341	0.332	0.315	0.308	0.326	4	AVG	
	4,4'-Methylenebis(2-Chloroani			0.160	0.167	0.174	0.175	0.166	0.163	0.168	4	AVG	
	Benzo(a)anthracene	0.965	0.997	0.950	0.942	0.930	0.907	0.883	0.890	0.933	4	AVG	
	Chrysene	0.976	1.001	0.949	0.926	0.867	0.878	0.835	0.818	0.906	7	AVG	
	bis(2-Ethylhexyl)phthalate			0.675	0.698	0.702	0.698	0.685	0.688	0.691	1	AVG	
	6-Methylchrysene			0.663	0.654	0.665	0.660	0.642	0.636	0.653	2	AVG	
*	Di-n-octylphthalate			1.519	1.533	1.669	1.698	1.706	1.708	1.639	5	AVG	*
	Dibenz(a,h)acridine			0.789	0.814	0.905	0.901	0.892	0.889	0.865	6	AVG	
	Dibenz(a,j)acridine			0.853	0.890	0.949	0.943	0.918	0.906	0.910	4	AVG	
	7,12-Dimethylbenz[a]anthracene		0.403	0.447	0.511	0.504	0.529	0.548	0.541	0.498	11	AVG	
	Benzo(b)fluoranthene	1.296	1.256	1.215	1.093	1.281	1.328	1.289	1.304	1.258	6	AVG	
	Quinoline			0.822	0.775	0.782	0.772	0.758	0.745	0.775	3	AVG	
	Benzo(k)fluoranthene	1.306	1.212	1.279	1.259	1.209	1.205	1.211	1.153	1.229	4	AVG	
*	Benzo(a)pyrene	1.169	1.058	1.077	1.083	1.134	1.133	1.108	1.101	1.108	3	AVG	*
	3-Methylcholanthrene		0.532	0.570	0.582	0.615	0.612	0.603	0.591	0.586	5	AVG	
	NDPA as diphenylamine			0.663	0.636	0.664	0.660	0.639	0.649	0.652	2	AVG	
	Indeno(1,2,3-cd)pyrene	1.280	1.062	1.149	1.164	1.227	1.217	1.196	1.168	1.183	5	AVG	
	Dibenz(a,h)anthracene	1.026	0.991	0.978	0.986	1.032	1.015	0.993	0.969	0.999	2	AVG	
	Benzo(g,h,i)perylene	1.037	0.978	0.949	0.973	1.040	1.041	1.010	0.989	1.002	4	AVG	
	Indene			2.681	2.580	2.711	2.756	2.704	2.695	2.688	2	AVG	
	2-Fluorophenol			1.438	1.426	1.457	1.487	1.445	1.452	1.451	1	AVG	
	Phenol-d5			2.151	2.131	2.215	2.243	2.178	2.161	2.180	2	AVG	
	Phenol-d6			2.151	2.131	2.215	2.243	2.178	2.161	2.180	2	AVG	
	Nitrobenzene-d5			0.430	0.425	0.434	0.430	0.425	0.429	0.429	1	AVG	
	2-Fluorobiphenyl			1.233	1.158	1.211	1.210	1.177	1.173	1.194	2	AVG	
	2,4,6-Tribromophenol			0.125	0.128	0.130	0.133	0.132	0.128	0.129	2	AVG	
	Terphenyl-d14			0.725	0.685	0.700	0.697	0.680	0.686	0.695	2	AVG	

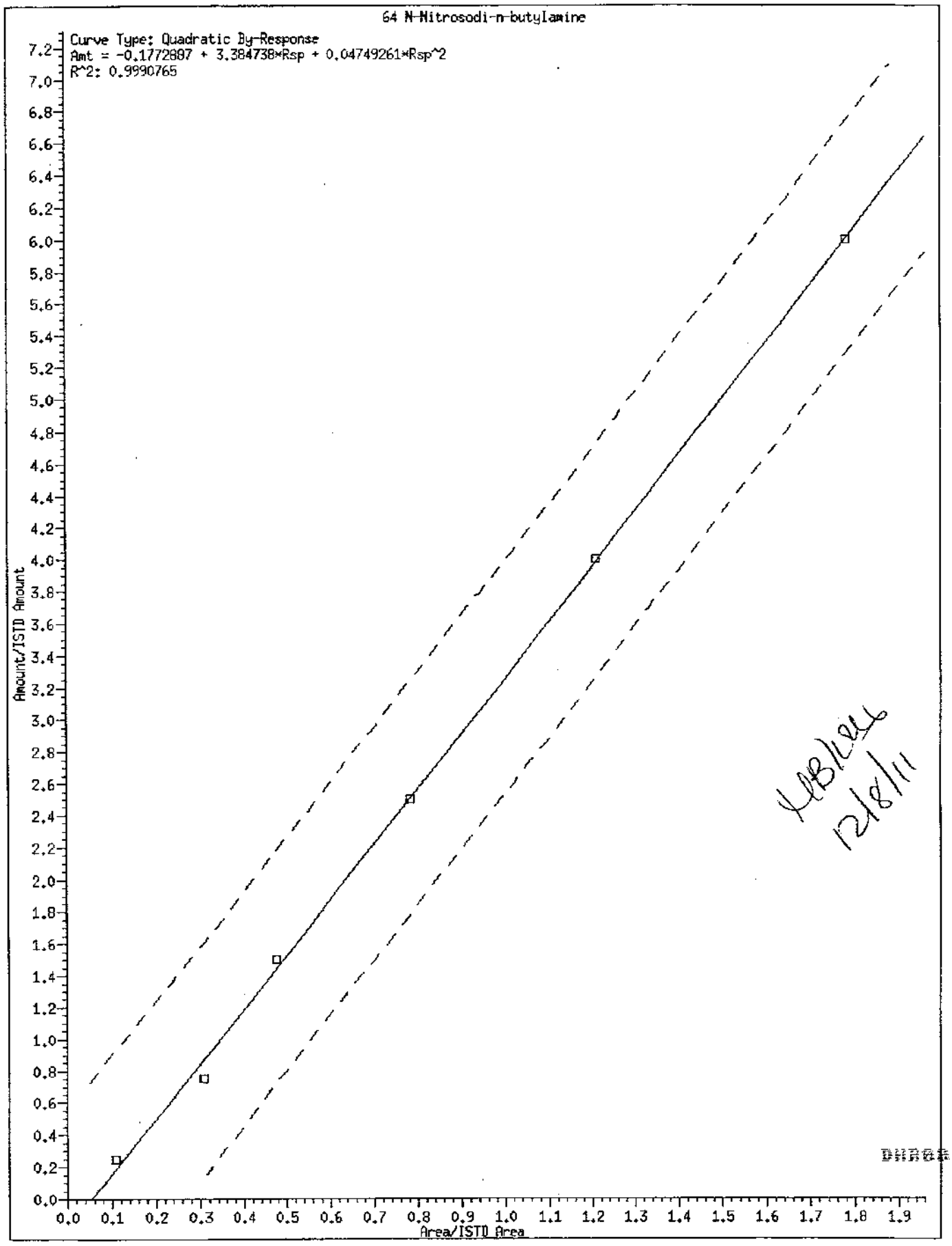
Average %RSD 4

+ %RSD is less than or equal to 20%; however, value rounds to 20.

4,6-Dinitro-2-methylphenol and 4-Nitrophenol are at 10 ng/ul in the 5 standard.
Benzidine Levels in the 5,15,30,50,80,120 standards are 15,45,90,150,240,360 ng/ul, respectively.
Benzoic acid, Pentachlorophenol and 2,4-Dinitrophenol are at 15 ng/ul, 30 ng/ul,40 ng/ul in the 5,15,30 standards.

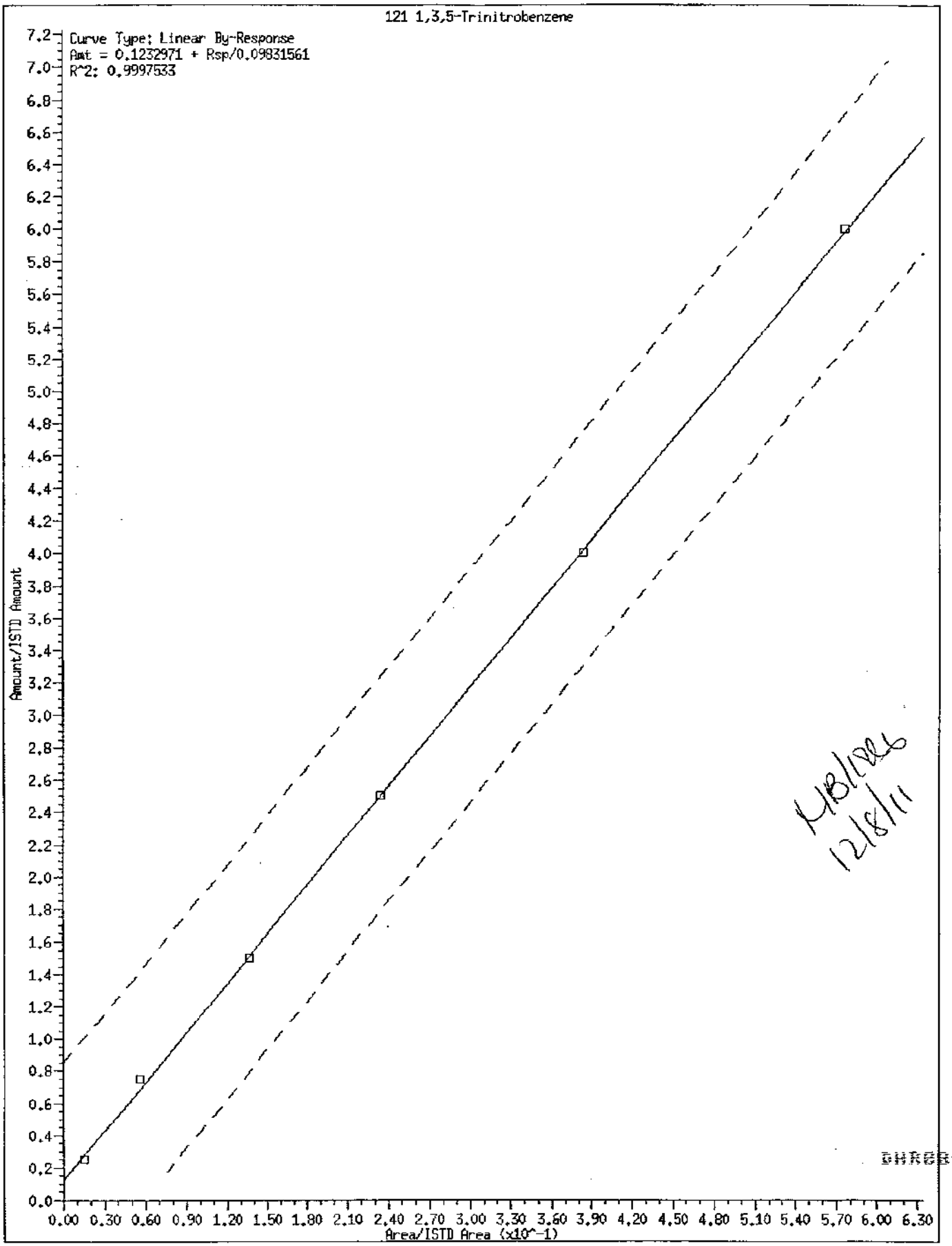
DH888 0194

FORM VI SV-1

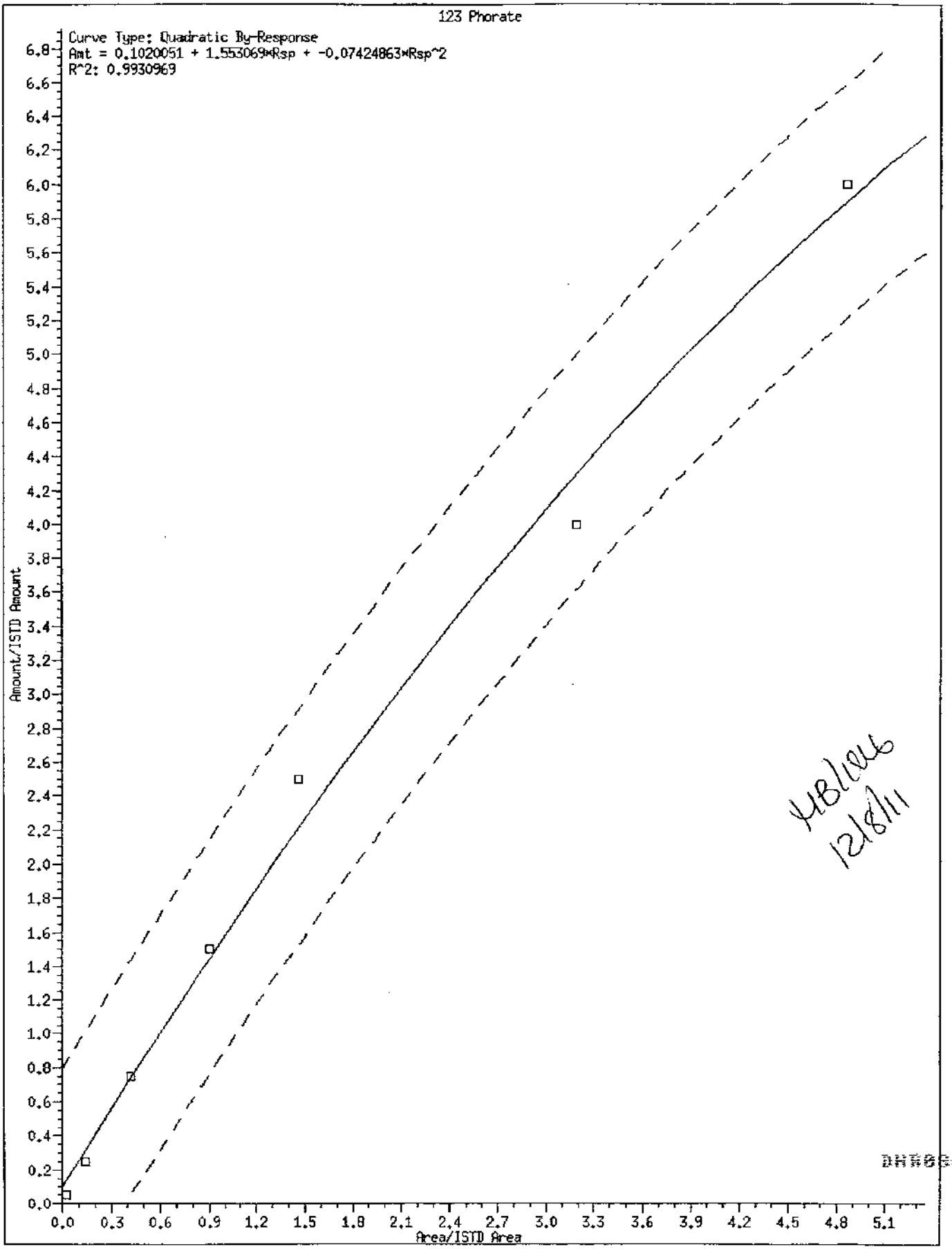


MB/LLL
12/8/11

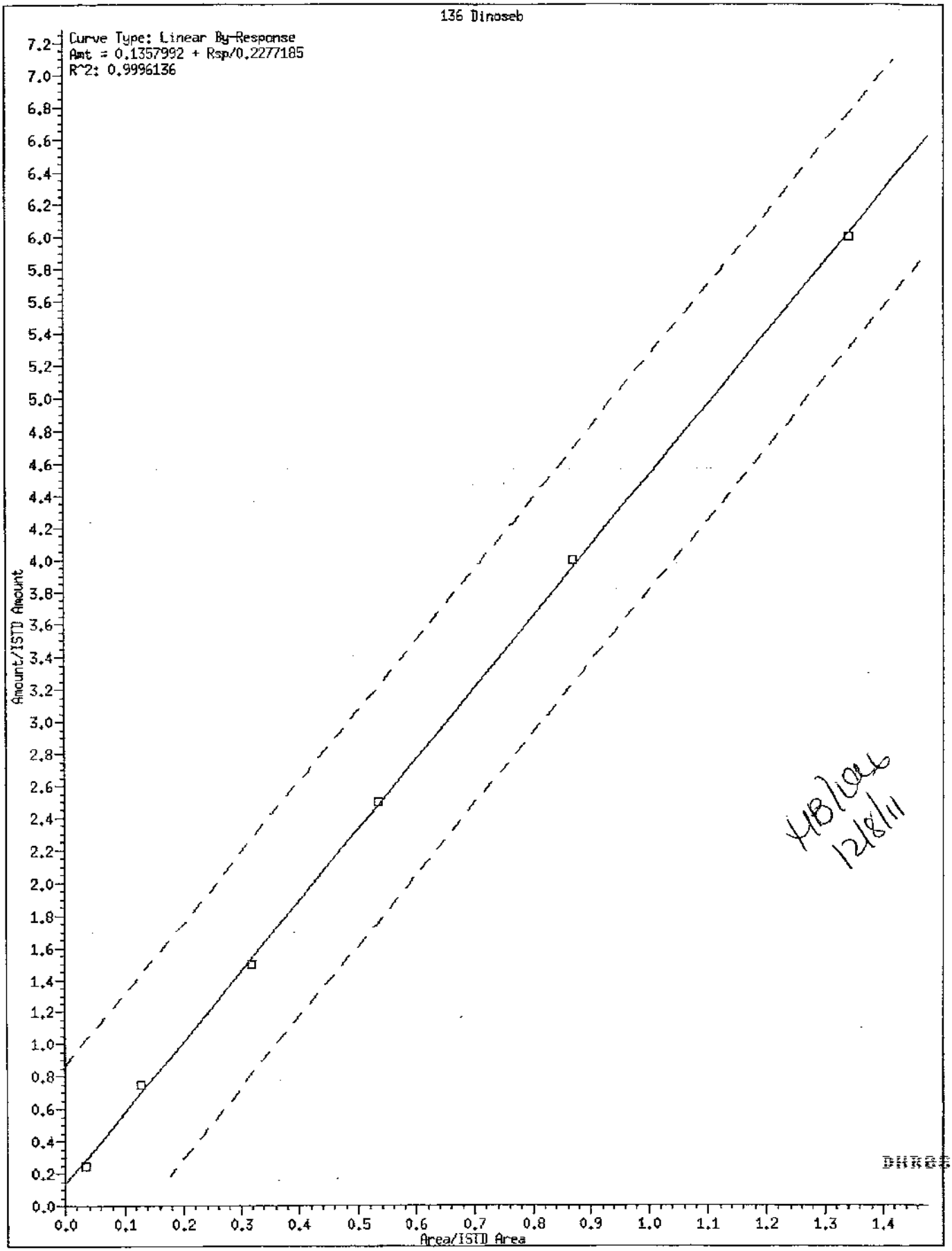
DHR08 0195


121 1,3,5-Trinitrobenzene
Curve Type: Linear By-Response
Amt = 0.1232971 + Rsp/0.09831561
R^2: 0.9997533
Amount/ISTD Amount
Area/ISTD Area (x10^-1)
MB/1886
12/8/11

DHR88 8196

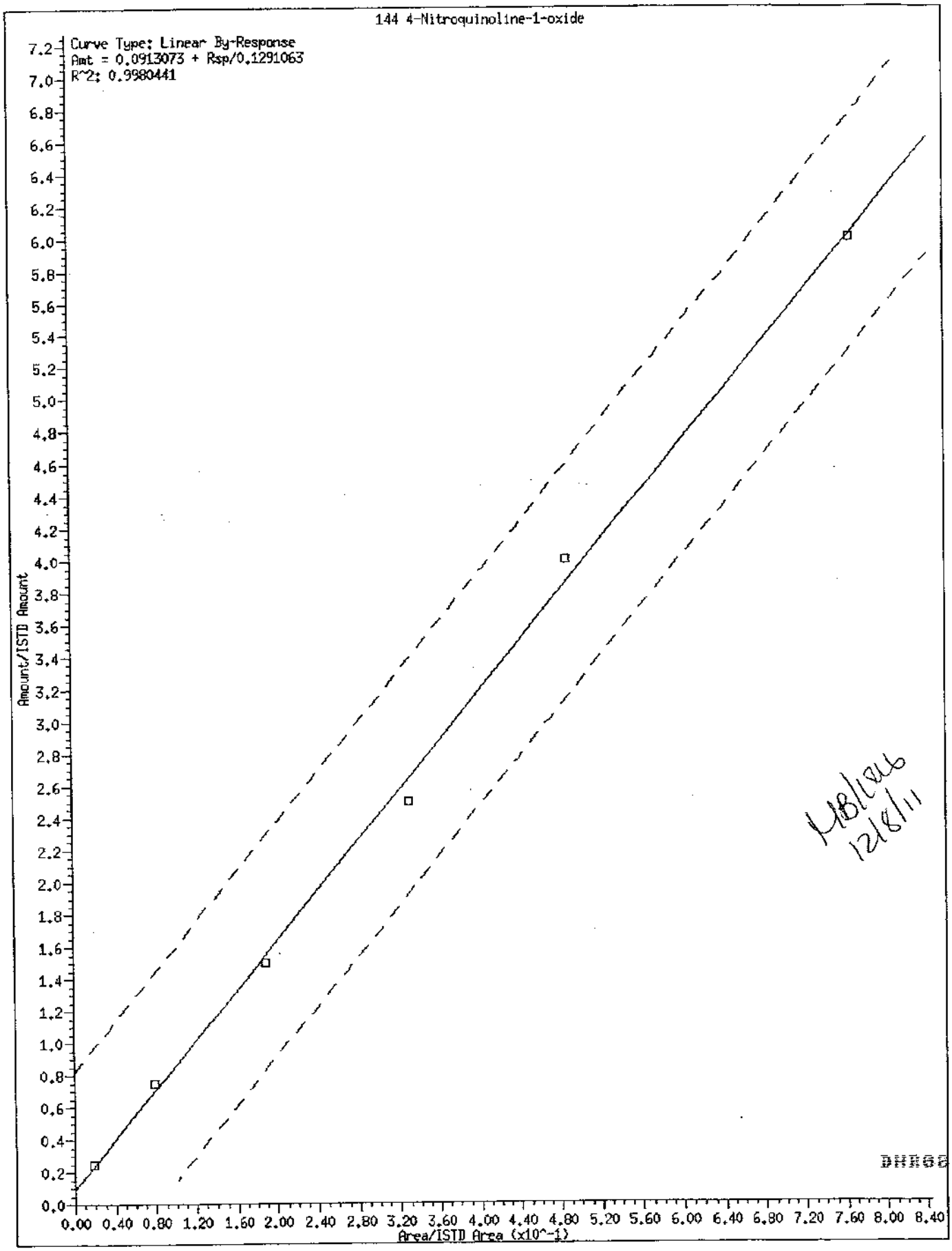

123 Phorate
Curve Type: Quadratic By-Response
Amt = 0.1020051 + 1.553069*Rsp + -0.07424863*Rsp^2
R^2: 0.9930969
Amount/ISTD Amount
Area/ISTD Area
MB/106
12/8/11

DHR06 8197



HB/06
12/8/11

DHR08 0198


144 4-Nitroquinoline-1-oxide
Curve Type: Linear By-Response
Amt = 0.0913073 + Rsp/0.1291063
R^2: 0.9980441
Amount/ISTD Amount
Area/ISTD Area (x10^-1)
MB/1826
12/8/11

DHR08 0199

Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem/HP09910.i/11dec08b.b/ol0411a.d SSTD030
/chem/HP09910.i/11dec08b.b/ol0412.d SSTD0.5
/chem/HP09910.i/11dec08b.b/ol0413.d SSTD120
/chem/HP09910.i/11dec08b.b/ol0414.d SSTD080
/chem/HP09910.i/11dec08b.b/ol0415.d SSTD050
/chem/HP09910.i/11dec08b.b/ol0416.d SSTD015
/chem/HP09910.i/11dec08b.b/ol0417.d SSTD005
/chem/HP09910.i/11dec08b.b/ol0418.d SSTD001

Area Summary

	File ID:									
Internal Standard Name	ol0411a.d	ol0412.d	ol0413.d	ol0414.d	ol0415.d	ol0416.d	ol0417.d	ol0418.d	Avg. Area	%RSD
1,4-Dichlorobenzene-d4	107220	77461	80711	94696	94462	73825	80289	85968	88079	12
Naphthalene-d8	494326	344769	413821	437806	432921	337841	361374	376405	399908	14
Acenaphthene-d10	321175	226487	264958	284056	279229	222373	240707	248850	260979	13
Phenanthrene-d10	566820	414631	452840	509547	503241	404997	435411	461636	468640	12
Pyrene-d10	661261	501805	527126	593870	596627	497005	528602	564142	558805	10
Perylene-d12	479028	393103	365373	409576	419562	376637	397449	427495	408528	9

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

	File ID:							
Internal Standard Name	ol0411a.d	ol0412.d	ol0413.d	ol0414.d	ol0415.d	ol0416.d	ol0417.d	ol0418.d
1,4-Dichlorobenzene-d4	6.198	6.198	6.198	6.198	6.198	6.198	6.198	6.198
Naphthalene-d8	7.457	7.457	7.463	7.463	7.457	7.457	7.457	7.457
Acenaphthene-d10	9.192	9.186	9.192	9.192	9.192	9.186	9.186	9.187
Phenanthrene-d10	10.657	10.651	10.663	10.663	10.657	10.651	10.651	10.651
Pyrene-d10	12.057	12.057	12.063	12.063	12.063	12.057	12.057	12.057
Perylene-d12	14.786	14.786	14.792	14.792	14.792	14.786	14.786	14.786

Comments: HB|1986
12/8/11

Report generated on 12/08/2011 at 20:36

DHR68 6268

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS LAB CODE: LANCAS INSTRUMENT: HP09910

Method: SW-846 8270C File ID: ol0421.d

ICV SAMPLE ID:ICV2691 BATCH: 11DEC08B026 Sample Name: ICV050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
1,4-Dioxane	50.00	48.36	-3	30	YES
N-Nitrosodimethylamine	50.00	47.87	-4	30	YES
Pyridine	50.00	48.73	-3	30	YES
2-Picoline	50.00	46.96	-6	30	YES
N-Nitrosomethylethylamine	50.00	47.99	-4	30	YES
Methyl methanesulfonate	50.00	49.28	-1	30	YES
2-Fluorophenol	50.00	46.00	-8	30	YES
N-Nitrosodiethylamine	50.00	50.54	1	30	YES
Ethyl methanesulfonate	50.00	50.29	1	30	YES
Aniline	50.00	47.30	-5	30	YES
Phenol-d5	50.00	46.70	-7	30	YES
Phenol-d6	50.00	46.70	-7	30	YES
Phenol	50.00	48.07	-4	30	YES
bis(2-Chloroethyl)ether	50.00	45.30	-9	30	YES
2-Chlorophenol	50.00	47.71	-5	30	YES
1,3-Dichlorobenzene	50.00	48.22	-4	30	YES
1,4-Dichlorobenzene	50.00	48.21	-4	30	YES
Benzyl alcohol	50.00	48.91	-2	30	YES
1,2-Dichlorobenzene	50.00	48.73	-3	30	YES
2-Methylphenol	50.00	49.37	-1	30	YES
2,2'-oxybis(1-Chloropropane	50.00	46.02	-8	30	YES
bis(2-Chloroisopropyl)ether	50.00	46.02	-8	30	YES
N-Nitrosopyrrolidine	50.00	51.56	3	30	YES
Acetophenone	50.00	48.12	-4	30	YES
N-Nitroso-di-n-propylamine	50.00	46.74	-7	30	YES
N-Nitrosomorpholine	50.00	50.65	1	30	YES
4-Methylphenol	50.00	47.89	-4	30	YES
o-Toluidine	50.00	48.17	-4	30	YES
Hexachloroethane	50.00	46.10	-8	30	YES
Nitrobenzene-d5	50.00	47.22	-6	30	YES
Nitrobenzene	50.00	48.36	-3	30	YES
N-Nitrosopiperidine	50.00	52.17	4	30	YES
Isophorone	50.00	48.71	-3	30	YES
2-Nitrophenol	50.00	50.23	0	30	YES
2,4-Dimethylphenol	50.00	49.66	-1	30	YES

NC = Could not calculate

Comments: _____

DH888 #201

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS LAB CODE: LANCAS INSTRUMENT: HP09910

Method: SW-846 8270C File ID: ol0421.d

ICV SAMPLE ID:ICV2691 BATCH: 11DEC08B026 Sample Name: ICV050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D Window	INSPEC
O,O,O-triethylphosphorothio	50.00	50.50	1	30	YES
bis(2-Chloroethoxy)methane	50.00	48.60	-3	30	YES
Benzoic acid	50.00	49.53	-1	30	YES
2,4-Dichlorophenol	50.00	50.26	1	30	YES
1,2,4-Trichlorobenzene	50.00	51.24	2	30	YES
Naphthalene	50.00	47.89	-4	30	YES
4-Chloroaniline	50.00	52.05	4	30	YES
2,6-Dichlorophenol	50.00	52.44	5	30	YES
Hexachloropropene	50.00	52.03	4	30	YES
Hexachlorobutadiene	50.00	47.91	-4	30	YES
N-Nitrosodi-n-butylamine	50.00	51.48	3	30	YES
4-Chloro-3-methylphenol	50.00	51.13	2	30	YES
Safrole	50.00	52.73	5	30	YES
2-Methylnaphthalene	50.00	48.94	-2	30	YES
1-Methylnaphthalene	50.00	49.87	0	30	YES
Hexachlorocyclopentadiene	100.00	107.05	7	30	YES
1,2,4,5-Tetrachlorobenzene	50.00	48.44	-3	30	YES
cis-Isosafrole	5.50	5.76	5	30	YES
2,4,6-Trichlorophenol	50.00	51.89	4	30	YES
2,4,5-Trichlorophenol	50.00	48.97	-2	30	YES
2-Fluorobiphenyl	50.00	48.09	-4	30	YES
trans-Isosafrole	44.50	46.84	5	30	YES
Isosafrole	50.00	52.63	5	30	YES
1,1'-Biphenyl	50.00	49.99	0	30	YES
2-Chloronaphthalene	50.00	53.07	6	30	YES
Diphenyl ether	50.00	49.35	-1	30	YES
2-Nitroaniline	50.00	50.67	1	30	YES
1,4-Naphthoquinone	62.50	59.38	-5	30	YES
1,4-Dinitrobenzene	50.00	50.24	0	30	YES
Dimethylphthalate	50.00	48.81	-2	30	YES
1,3-Dinitrobenzene	50.00	50.67	1	30	YES
2,6-Dinitrotoluene	50.00	50.13	0	30	YES
Acenaphthylene	50.00	49.82	0	30	YES
3-Nitroaniline	50.00	51.07	2	30	YES
Acenaphthene	50.00	46.83	-6	30	YES
2,4-Dinitrophenol	50.00	48.38	-3	30	YES
Pentachlorobenzene	50.00	50.72	1	30	YES

NC = Could not calculate

Comments: _____

BHR88 0282

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS LAB CODE: LANCAS INSTRUMENT: HP09910

Method: SW-846 8270C File ID: ol0421.d

ICV SAMPLE ID:ICV2691 BATCH: 11DEC08B026 Sample Name: ICV050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
4-Nitrophenol	50.00	53.37	7	30	YES
Dibenzofuran	50.00	49.69	-1	30	YES
2,4-Dinitrotoluene	50.00	49.95	0	30	YES
1-Naphthylamine	100.00	103.48	3	30	YES
2,3,4,6-Tetrachlorophenol	50.00	51.04	2	30	YES
2-Naphthylamine	100.00	102.05	2	30	YES
Diethylphthalate	50.00	48.82	-2	30	YES
Thionazin	50.00	51.44	3	30	YES
Fluorene	50.00	49.25	-2	30	YES
4-Chlorophenyl-phenylether	50.00	48.86	-2	30	YES
5-Nitro-o-toluidine	50.00	52.53	5	30	YES
4-Nitroaniline	50.00	51.04	2	30	YES
4,6-Dinitro-2-methylphenol	50.00	49.45	-1	30	YES
N-Nitrosodiphenylamine	50.00	49.11	-2	30	YES
1,2-Diphenylhydrazine	50.00	48.34	-3	30	YES
2,4,6-Tribromophenol	50.00	48.88	-2	30	YES
Tetraethyldithiopyrophospha	50.00	49.83	0	30	YES
1,3,5-Trinitrobenzene	50.00	48.42	-3	30	YES
Diallate (peak 1)	37.50	38.62	3	30	YES
Phorate	50.00	45.50	-9	30	YES
Phenacetin	50.00	51.37	3	30	YES
4-Bromophenyl-phenylether	50.00	46.59	-7	30	YES
Diallate (peak 2)	12.50	12.34	-1	30	YES
Hexachlorobenzene	50.00	46.95	-6	30	YES
Dimethoate	50.00	47.47	-5	30	YES
Diallate TRANS/CIS	50.00	51.13	2	30	YES
Pentachlorophenol	50.00	52.31	5	30	YES
Pentachloronitrobenzene	50.00	52.64	5	30	YES
4-Aminobiphenyl	50.00	59.50	19	30	YES
Pronamide	50.00	51.98	4	30	YES
Dinoseb	50.00	48.85	-2	30	YES
Phenanthrene	50.00	45.79	-8	30	YES
Anthracene	50.00	47.22	-6	30	YES
Carbazole	50.00	49.38	-1	30	YES
Methyl parathion	50.00	49.04	-2	30	YES
Di-n-butylphthalate	50.00	48.10	-4	30	YES
Parathion	50.00	50.70	1	30	YES

NC = Could not calculate

Comments: _____

DHR88 8283

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS LAB CODE: LANCAS INSTRUMENT: HP09910

Method: SW-846 8270C File ID: ol0421.d

ICV SAMPLE ID:ICV2691 BATCH: 11DEC088026 Sample Name: ICV05D

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
4-Nitroquinoline-1-oxide	550.00	691.41	26	30	YES
Isodrin	50.00	50.64	1	30	YES
Fluoranthene	50.00	49.23	-2	30	YES
Benzidine	250.00	247.03	-1	30	YES
Pyrene	50.00	46.20	-8	30	YES
Terphenyl-d14	50.00	48.87	-2	30	YES
p-Dimethylaminoazobenzene	50.00	54.16	8	30	YES
Chlorobenzilate	50.00	52.80	6	30	YES
3,3'-Dimethylbenzidine	50.00	46.87	-6	30	YES
Butylbenzylphthalate	50.00	49.10	-2	30	YES
2-Acetylaminofluorene	50.00	53.41	7	30	YES
3,3'-Dichlorobenzidine	50.00	46.36	-7	30	YES
4,4'-Methylenebis(2-Chloroa	50.00	46.03	-8	30	YES
Benzo(a)anthracene	50.00	47.41	-5	30	YES
Chrysene	50.00	47.69	-5	30	YES
bis(2-Ethylhexyl)phthalate	50.00	48.55	-3	30	YES
Di-n-octylphthalate	50.00	49.39	-1	30	YES
7,12-Dimethylbenz[a]anthrac	50.00	56.50	13	30	YES
Benzo(b)fluoranthene	50.00	45.92	-8	30	YES
Benzo(k)fluoranthene	50.00	49.49	-1	30	YES
Benzo(a)pyrene	50.00	49.33	-1	30	YES
3-Methylcholanthrene	50.00	52.28	5	30	YES
Indeno(1,2,3-cd)pyrene	50.00	49.33	-1	30	YES
Dibenz(a,h)anthracene	50.00	49.68	-1	30	YES
Benzo(g,h,i)perylene	50.00	49.04	-2	30	YES
6-Methylchrysene	50.00	48.93	-2	30	YES
Dibenz(a,h)acridine	50.00	47.37	-5	30	YES
Dibenz(a,j)acridine	50.00	53.65	7	30	YES
Quinoline	50.00	48.11	-4	30	YES
Indene	50.00	45.47	-9	30	YES

NC = Could not calculate

Comments: _____

DHR60 6284

7B

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09910 Calibration Date: 12/16/11 Time: 02:15

Lab File ID: ol0741.d Init. Calib. Date(s): 12/08/11 12/08/11

Init. Calib. Times(s): 16:53 19:51

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

	COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
	1,4-Dioxane	0.625	0.626	30.090	30.0	0
	N-Nitrosodimethylamine	1.090	1.069	29.420	30.0	-2
	Pyridine	1.790	1.700	28.490	30.0	-5
	2-Picoline	1.897	1.871	29.600	30.0	-1
	N-Nitrosomethylethylamine	0.914	0.922	30.270	30.0	1
	Methyl methanesulfonate	0.941	0.956	30.460	30.0	2
	N-Nitrosodiethylamine	0.867	0.864	29.890	30.0	0
	Ethyl methanesulfonate	0.836	0.839	30.110	30.0	0
	Aniline	2.837	2.822	29.840	30.0	-1
*	Phenol	2.465	2.481	30.190	30.0	1*
	bis(2-Chloroethyl)ether	1.776	1.833	30.970	30.0	3
	2-Chlorophenol	1.566	1.575	30.190	30.0	1
	1,3-Dichlorobenzene	1.604	1.613	30.180	30.0	1
*	1,4-Dichlorobenzene	1.663	1.638	29.550	30.0	-1*
	Benzyl alcohol	1.174	1.007	25.740	30.0	-14
	1,2-Dichlorobenzene	1.554	1.559	30.110	30.0	0
	2-Methylphenol	1.592	1.624	30.610	30.0	2
	2,2'-oxybis(1-Chloropropane)	2.692	2.741	30.550	30.0	2
	bis(2-Chloroisopropyl)ether	2.692	2.741	30.550	30.0	2
	N-Nitrosopyrrolidine	0.996	1.005	30.250	30.0	1
	Acetophenone	2.367	2.463	31.220	30.0	4
#	N-Nitroso-di-n-propylamine	1.533	1.552	30.380	30.0	1#
	N-Nitrosomorpholine	1.184	1.239	31.390	30.0	5
	4-Methylphenol	1.779	1.943	32.760	30.0	9
	o-Toluidine	2.810	2.830	30.220	30.0	1
	Hexachloroethane	0.595	0.598	30.120	30.0	0
	Nitrobenzene	0.435	0.436	30.060	30.0	0
	N-Nitrosopiperidine	0.203	0.204	30.040	30.0	0
	Isophorone	0.840	0.848	30.300	30.0	1
*	2-Nitrophenol	0.196	0.197	30.230	30.0	1*
	2,4-Dimethylphenol	0.398	0.397	29.950	30.0	0
	O,O,O-triethylphosphorothioate	0.175	0.181	31.090	30.0	4
	bis(2-Chloroethoxy)methane	0.477	0.494	31.020	30.0	3
	Benzoic acid	0.362	0.319	35.220	40.0	-12
*	2,4-Dichlorophenol	0.297	0.303	30.640	30.0	2*
	1,2,4-Trichlorobenzene	0.310	0.310	29.930	30.0	0

BCM 12-16-11

DHR88 0285

FORM VII SV-1

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09910 Calibration Date: 12/16/11 Time: 02:15

Lab File ID: ol0741.d Init. Calib. Date(s): 12/08/11 12/08/11

Init. Calib. Times(s): 16:53 19:51

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
Naphthalene	1.100	1.083	29.550	30.0	-2
4-Chloroaniline	0.456	0.443	29.110	30.0	-3
2,6-Dichlorophenol	0.296	0.296	30.020	30.0	0
Hexachloropropene	0.170	0.171	30.150	30.0	1
* Hexachlorobutadiene	0.146	0.146	30.000	30.0	0*
Caprolactam	0.161	0.159	29.530	30.0	-2
N-Nitrosodi-n-butylamine	0.346	0.311	28.270	30.0	-6
* 4-Chloro-3-methylphenol	0.370	0.367	29.770	30.0	-1*
Safrole	0.288	0.295	30.710	30.0	2
2-Methylnaphthalene	0.761	0.755	29.760	30.0	-1
1-Methylnaphthalene	0.713	0.713	30.000	30.0	0
# Hexachlorocyclopentadiene	0.216	0.220	30.570	30.0	2#
1,2,4,5-Tetrachlorobenzene	0.453	0.465	30.770	30.0	3
cis-Isosafrole	0.744	0.740	3.280	3.3	-1
* 2,4,6-Trichlorophenol	0.335	0.348	31.160	30.0	4*
2,4,5-Trichlorophenol	0.378	0.379	30.070	30.0	0
trans-Isosafrole	0.531	0.541	27.180	26.7	2
Isosafrole	0.473	0.481	30.540	30.0	2
1,1'-Biphenyl	1.415	1.463	31.030	30.0	3
2-Chloronaphthalene	1.130	0.961	25.520	30.0	-15
1-Chloronaphthalene	1.044	1.152	33.100	30.0	10
Diphenyl ether	0.749	0.759	30.380	30.0	1
2-Nitroaniline	0.400	0.403	30.220	30.0	1
1,4-Naphthoquinone	0.477	0.466	29.310	30.0	-2
1,4-Dinitrobenzene	0.206	0.210	30.510	30.0	2
Dimethylphthalate	1.304	1.301	29.930	30.0	0
1,3-Dinitrobenzene	0.245	0.240	29.460	30.0	-2
2,6-Dinitrotoluene	0.303	0.310	30.600	30.0	2
Acenaphthylene	1.729	1.719	29.830	30.0	-1
3-Nitroaniline	0.363	0.360	29.760	30.0	-1
* Acenaphthene	1.177	1.153	29.380	30.0	-2*
# 2,4-Dinitrophenol	0.197	0.175	35.660	40.0	-11#
Pentachlorobenzene	0.412	0.411	29.870	30.0	0
# 4-Nitrophenol	0.199	0.195	29.470	30.0	-2#
Dibenzofuran	1.605	1.616	30.200	30.0	1
2,4-Dinitrotoluene	0.411	0.409	29.800	30.0	-1

DHR05 0286

FORM VII SV-1

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09910 Calibration Date: 12/16/11 Time: 02:15

Lab File ID: ol0741.d Init. Calib. Date(s): 12/08/11 12/08/11

Init. Calib. Times(s): 16:53 19:51

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

	COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
	1-Naphthylamine	1.278	1.315	30.870	30.0	3
	2,3,4,6-Tetrachlorophenol	0.293	0.292	29.910	30.0	0
	2-Naphthylamine	1.309	1.287	29.510	30.0	-2
	Diethylphthalate	1.308	1.316	30.200	30.0	1
	Thionazin	0.245	0.240	29.330	30.0	-2
	Fluorene	1.367	1.359	29.840	30.0	-1
	4-Chlorophenyl-phenylether	0.611	0.622	30.510	30.0	2
	5-Nitro-o-toluidine	0.436	0.419	28.830	30.0	-4
	4-Nitroaniline	0.394	0.377	28.690	30.0	-4
	4,6-Dinitro-2-methylphenol	0.139	0.141	30.420	30.0	1
*	N-Nitrosodiphenylamine (1)	0.658	0.678	30.870	30.0	3*
	1,2-Diphenylhydrazine	0.888	0.922	31.150	30.0	4
	Tetraethyldithiopyrophosphate	0.126	0.130	30.830	30.0	3
	1,3,5-Trinitrobenzene	0.086	0.087	28.890	30.0	-4
	Diallate (peak 1)	0.424	0.440	23.340	22.5	4
	Phorate	0.634	0.795	36.980	30.0	23
	Phenacetin	0.435	0.429	29.600	30.0	-1
	4-Bromophenyl-phenylether	0.189	0.190	30.120	30.0	0
	Diallate (peak 2)	0.264	0.268	7.610	7.5	1
	Hexachlorobenzene	0.184	0.181	29.380	30.0	-2
	Dimethoate	0.372	0.381	30.690	30.0	2
	Diallate TRANS/CIS	0.384	0.397	31.000	30.0	3
*	Pentachlorophenol	0.129	0.122	28.410	30.0	-5*
	Pentachloronitrobenzene	0.077	0.080	31.280	30.0	4
	4-Aminobiphenyl	0.759	0.767	30.320	30.0	1
	Pronamide	0.336	0.352	31.460	30.0	5
	Dinoseb	0.197	0.195	28.420	30.0	-5
	Phenanthrene	1.166	1.146	29.470	30.0	-2
	Anthracene	1.179	1.182	30.060	30.0	0
	Carbazole	1.134	1.113	29.450	30.0	-2
	Methyl parathion	0.269	0.291	32.450	30.0	8
	Di-n-butylphthalate	1.335	1.351	30.370	30.0	1
	Parathion	0.164	0.168	30.700	30.0	2
	4-Nitroquinoline-1-oxide	0.114	0.096	24.240	30.0	-19
	Isodrin	0.126	0.128	30.380	30.0	1
*	Fluoranthene	1.209	1.175	29.160	30.0	-3*

DHR69 02867

(1) Cannot be Separated from Diphenylamine

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09910 Calibration Date: 12/16/11 Time: 02:15

Lab File ID: ol0741.d Init. Calib. Date(s): 12/08/11 12/08/11

Init. Calib. Times(s): 16:53 19:51

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

	COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
	Benzidine	0.669	0.697	93.850	90.0	4
	Pyrene	1.129	1.102	29.310	30.0	-2
	p-Dimethylaminoazobenzene	0.211	0.219	31.070	30.0	4
	Chlorobenzilate	0.326	0.336	30.960	30.0	3
	3,3'-Dimethylbenzidine	0.599	0.645	32.280	30.0	8
	Butylbenzylphthalate	0.501	0.515	30.870	30.0	3
	2-Acetylaminofluorene	0.435	0.454	31.270	30.0	4
	3,3'-Dichlorobenzidine	0.326	0.342	31.440	30.0	5
	4,4'-Methylenebis(2-Chloroanil	0.168	0.179	31.970	30.0	7
	Benzo(a)anthracene	0.933	0.913	29.360	30.0	-2
	Chrysene	0.906	0.939	31.090	30.0	4
	bis(2-Ethylhexyl)phthalate	0.691	0.733	31.820	30.0	6
	6-Methylchrysene	0.653	0.663	30.430	30.0	1
	Dibenz(a,h)acridine	0.865	0.874	30.330	30.0	1
*	Di-n-octylphthalate	1.639	1.695	31.040	30.0	3*
	Dibenz(a,j)acridine	0.910	0.930	30.660	30.0	2
	7,12-Dimethylbenz[a]anthracene	0.498	0.566	34.120	30.0	14
	Quinoline	0.775	0.765	29.610	30.0	-1
	Benzo(b)fluoranthene	1.258	1.193	28.470	30.0	-5
	Benzo(k)fluoranthene	1.229	1.300	31.720	30.0	6
*	Benzo(a)pyrene	1.108	1.140	30.880	30.0	3*
	3-Methylcholanthrene	0.586	0.633	32.390	30.0	8
	NDPA as diphenylamine	0.652	0.678	31.190	30.0	4
	Indeno(1,2,3-cd)pyrene	1.183	1.218	30.890	30.0	3
	Dibenz(a,h)anthracene	0.999	1.032	31.000	30.0	3
	Benzo(g,h,i)perylene	1.002	1.020	30.530	30.0	2
	Indene	2.688	2.293	25.590	30.0	-15
	2-Fluorophenol	1.451	1.440	29.770	30.0	-1
	Phenol-d5	2.180	2.199	30.270	30.0	1
	Phenol-d6	2.180	2.199	30.270	30.0	1
	Nitrobenzene-d5	0.429	0.433	30.310	30.0	1
	2-Fluorobiphenyl	1.194	1.234	31.010	30.0	3
	2,4,6-Tribromophenol	0.129	0.127	29.390	30.0	-2
	Terphenyl-d14	0.695	0.714	30.790	30.0	3
				Average %Drift:		3

SHN63 8263

Continuing Calibration
Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem/HP09910.i/11dec08b.b/ol0411a.d
/chem/HP09910.i/11dec08b.b/ol0412.d
/chem/HP09910.i/11dec08b.b/ol0413.d
/chem/HP09910.i/11dec08b.b/ol0414.d
/chem/HP09910.i/11dec08b.b/ol0415.d
/chem/HP09910.i/11dec08b.b/ol0416.d **
/chem/HP09910.i/11dec08b.b/ol0417.d
/chem/HP09910.i/11dec08b.b/ol0418.d

** indicates the Mid Level Calibration Standard.

Mid Level Calibration Standard is used for comparison.

Current Continuing Calibration Standard:

/chem/HP09910.i/11dec16.b/ol0741.d

Area Summary

File ID:

Internal Standard Name	ol0741.d	ICAL Area	Low Limit	High Limit	In Spec
1,4-Dichlorobenzene-d4	89227	73826	36913	147652	Yes
Naphthalene-d8	408917	337841	168920	675682	Yes
Acenaphthene-d10	262991	222372	111186	444744	Yes
Phenanthrene-d10	449359	404997	202498	809994	Yes
Pyrene-d10	512855	497005	248502	994010	Yes
Perylene-d12	363453	376637	188318	753274	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

RT Summary

File ID:

Internal Standard Name	ol0741.d	ICAL RT	In Spec
1,4-Dichlorobenzene-d4	5.945	6.198	Yes
Naphthalene-d8	7.204	7.457	Yes
Acenaphthene-d10	8.928	9.186	Yes
Phenanthrene-d10	10.392	10.651	Yes
Pyrene-d10	11.786	12.057	Yes
Perylene-d12	14.457	14.786	Yes

BKm 12-16-11

A "No" indicates the retention time is greater than 30 seconds from the RT of the referenced standard.

Comments: DMB08 5289

7B

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09910 Calibration Date: 12/20/11 Time: 15:47

Lab File ID: ol0871.d Init. Calib. Date(s): 12/08/11 12/08/11

Init. Calib. Times(s): 16:53 19:51

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

	COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
	1,4-Dioxane	0.625	0.629	30.200	30.0	1
	N-Nitrosodimethylamine	1.090	1.095	30.130	30.0	0
	Pyridine	1.790	1.809	30.320	30.0	1
	2-Picoline	1.897	1.938	30.650	30.0	2
	N-Nitrosomethylethylamine	0.914	0.899	29.530	30.0	-2
	Methyl methanesulfonate	0.941	0.980	31.240	30.0	4
	N-Nitrosodiethylamine	0.867	0.861	29.790	30.0	-1
	Ethyl methanesulfonate	0.836	0.871	31.260	30.0	4
	Aniline	2.837	2.892	30.580	30.0	2
*	Phenol	2.465	2.618	31.860	30.0	6*
	bis(2-Chloroethyl)ether	1.776	1.813	30.630	30.0	2
	2-Chlorophenol	1.566	1.586	30.380	30.0	1
	1,3-Dichlorobenzene	1.604	1.610	30.110	30.0	0
*	1,4-Dichlorobenzene	1.663	1.646	29.680	30.0	-1*
	Benzyl alcohol	1.174	1.005	25.690	30.0	-14
	1,2-Dichlorobenzene	1.554	1.581	30.520	30.0	2
	2-Methylphenol	1.592	1.692	31.900	30.0	6
	2,2'-oxybis(1-Chloropropane)	2.692	2.670	29.760	30.0	-1
	bis(2-Chloroisopropyl)ether	2.692	2.670	29.760	30.0	-1
	N-Nitrosopyrrolidine	0.996	1.058	31.870	30.0	6
	Acetophenone	2.367	2.493	31.600	30.0	5
#	N-Nitroso-di-n-propylamine	1.533	1.579	30.900	30.0	3#
	N-Nitrosomorpholine	1.184	1.298	32.900	30.0	10
	4-Methylphenol	1.779	2.013	33.940	30.0	13
	o-Toluidine	2.810	2.952	31.520	30.0	5
	Hexachloroethane	0.595	0.602	30.360	30.0	1
	Nitrobenzene	0.435	0.439	30.270	30.0	1
	N-Nitrosopiperidine	0.203	0.208	30.750	30.0	2
	Isophorone	0.840	0.855	30.520	30.0	2
*	2-Nitrophenol	0.196	0.197	30.180	30.0	1*
	2,4-Dimethylphenol	0.398	0.409	30.810	30.0	3
	O,O,O-triethylphosphorothioate	0.175	0.172	29.510	30.0	-2
	bis(2-Chloroethoxy)methane	0.477	0.493	30.990	30.0	3
	Benzoic acid	0.362	0.311	34.370	40.0	-14
*	2,4-Dichlorophenol	0.297	0.301	30.430	30.0	1*
	1,2,4-Trichlorobenzene	0.310	0.304	29.350	30.0	-2

MBL 0806 12/20/11

DHR08 0218

FORM VII SV-1

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09910 Calibration Date: 12/20/11 Time: 15:47

Lab File ID: ol0871.d Init. Calib. Date(s): 12/08/11 12/08/11

Init. Calib. Times(s): 16:53 19:51

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

	COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
	Naphthalene	1.100	1.090	29.730	30.0	-1
	4-Chloroaniline	0.456	0.464	30.540	30.0	2
	2,6-Dichlorophenol	0.296	0.298	30.220	30.0	1
	Hexachloropropene	0.170	0.163	28.780	30.0	-4
*	Hexachlorobutadiene	0.146	0.138	28.320	30.0	-6*
	Caprolactam	0.161	0.175	32.540	30.0	8
	N-Nitrosodi-n-butylamine	0.346	0.324	29.600	30.0	-1
*	4-Chloro-3-methylphenol	0.370	0.384	31.180	30.0	4*
	Safrole	0.288	0.296	30.770	30.0	3
	2-Methylnaphthalene	0.761	0.764	30.140	30.0	0
	1-Methylnaphthalene	0.713	0.725	30.470	30.0	2
#	Hexachlorocyclopentadiene	0.216	0.197	27.270	30.0	-9#
	1,2,4,5-Tetrachlorobenzene	0.453	0.441	29.150	30.0	-3
	cis-Isosafrole	0.744	0.731	3.240	3.3	-2
*	2,4,6-Trichlorophenol	0.335	0.335	29.990	30.0	0*
	2,4,5-Trichlorophenol	0.378	0.376	29.870	30.0	0
	trans-Isosafrole	0.531	0.534	26.820	26.7	0
	Isosafrole	0.473	0.475	30.140	30.0	0
	1,1'-Biphenyl	1.415	1.456	30.880	30.0	3
	2-Chloronaphthalene	1.130	1.275	33.850	30.0	13
	1-Chloronaphthalene	1.044	1.053	30.260	30.0	1
	Diphenyl ether	0.749	0.752	30.100	30.0	0
	2-Nitroaniline	0.400	0.422	31.650	30.0	6
	1,4-Naphthoquinone	0.477	0.482	30.320	30.0	1
	1,4-Dinitrobenzene	0.206	0.216	31.480	30.0	5
	Dimethylphthalate	1.304	1.349	31.020	30.0	3
	1,3-Dinitrobenzene	0.245	0.253	31.010	30.0	3
	2,6-Dinitrotoluene	0.303	0.320	31.630	30.0	5
	Acenaphthylene	1.729	1.761	30.550	30.0	2
	3-Nitroaniline	0.363	0.376	31.080	30.0	4
*	Acenaphthene	1.177	1.168	29.770	30.0	-1*
#	2,4-Dinitrophenol	0.197	0.172	35.020	40.0	-12#
	Pentachlorobenzene	0.412	0.399	29.010	30.0	-3
#	4-Nitrophenol	0.199	0.204	30.740	30.0	2#
	Dibenzofuran	1.605	1.648	30.800	30.0	3
	2,4-Dinitrotoluene	0.411	0.426	31.090	30.0	4

DHN60 6211

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09910 Calibration Date: 12/20/11 Time: 15:47

Lab File ID: o10871.d Init. Calib. Date(s): 12/08/11 12/08/11

Init. Calib. Times(s): 16:53 19:51

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

	COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
	1-Naphthylamine	1.278	1.382	32.430	30.0	8
	2,3,4,6-Tetrachlorophenol	0.293	0.281	28.790	30.0	-4
	2-Naphthylamine	1.309	1.412	32.380	30.0	8
	Diethylphthalate	1.308	1.350	30.980	30.0	3
	Thionazin	0.245	0.248	30.360	30.0	1
	Fluorene	1.367	1.402	30.770	30.0	3
	4-Chlorophenyl-phenylether	0.611	0.622	30.510	30.0	2
	5-Nitro-o-toluidine	0.436	0.465	31.990	30.0	7
	4-Nitroaniline	0.394	0.409	31.170	30.0	4
	4,6-Dinitro-2-methylphenol	0.139	0.132	28.550	30.0	-5
*	N-Nitrosodiphenylamine (1)	0.658	0.667	30.370	30.0	1*
	1,2-Diphenylhydrazine	0.888	0.904	30.540	30.0	2
	Tetraethyldithiopyrophosphate	0.126	0.128	30.360	30.0	1
	1,3,5-Trinitrobenzene	0.086	0.088	29.360	30.0	-2
	Diallate (peak 1)	0.424	0.426	22.620	22.5	1
	Phorate	0.634	0.793	36.890	30.0	23
	Phenacetin	0.435	0.439	30.260	30.0	1
	4-Bromophenyl-phenylether	0.189	0.183	29.060	30.0	-3
	Diallate (peak 2)	0.264	0.264	7.500	7.5	0
	Hexachlorobenzene	0.184	0.168	27.400	30.0	-9
	Dimethoate	0.372	0.392	31.590	30.0	5
	Diallate TRANS/CIS	0.384	0.386	30.130	30.0	0
*	Pentachlorophenol	0.129	0.115	26.730	30.0	-11*
	Pentachloronitrobenzene	0.077	0.076	29.690	30.0	-1
	4-Aminobiphenyl	0.759	0.800	31.610	30.0	5
	Pronamide	0.336	0.353	31.530	30.0	5
	Dinoseb	0.197	0.187	27.290	30.0	-9
	Phenanthrene	1.166	1.154	29.690	30.0	-1
	Anthracene	1.179	1.182	30.070	30.0	0
	Carbazole	1.134	1.147	30.330	30.0	1
	Methyl parathion	0.269	0.290	32.330	30.0	8
	Di-n-butylphthalate	1.335	1.360	30.560	30.0	2
	Parathion	0.164	0.169	30.850	30.0	3
	4-Nitroquinoline-1-oxide	0.114	0.103	25.710	30.0	-14
	Isodrin	0.126	0.126	29.920	30.0	0
*	Fluoranthene	1.209	1.197	29.690	30.0	-1*

(1) Cannot be Separated from Diphenylamine

DHR08 |8212

7C cont

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09910 Calibration Date: 12/20/11 Time: 15:47

Lab File ID: ol0871.d Init. Calib. Date(s): 12/08/11 12/08/11

Init. Calib. Times(s): 16:53 19:51

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

	COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
	Benzidine	0.669	0.711	95.650	90.0	6
	Pyrene	1.129	1.095	29.110	30.0	-3
	p-Dimethylaminoazobenzene	0.211	0.215	30.530	30.0	2
	Chlorobenzilate	0.326	0.335	30.850	30.0	3
	3,3'-Dimethylbenzidine	0.599	0.622	31.140	30.0	4
	Butylbenzylphthalate	0.501	0.516	30.880	30.0	3
	2-Acetylaminofluorene	0.435	0.444	30.610	30.0	2
	3,3'-Dichlorobenzidine	0.326	0.333	30.640	30.0	2
	4,4'-Methylenebis(2-Chloroanil	0.168	0.171	30.620	30.0	2
	Benzo(a)anthracene	0.933	0.925	29.730	30.0	-1
	Chrysene	0.906	0.938	31.030	30.0	3
	bis(2-Ethylhexyl)phthalate	0.691	0.706	30.630	30.0	2
	6-Methylchrysene	0.653	0.665	30.540	30.0	2
	Dibenz(a,h)acridine	0.865	0.832	28.860	30.0	-4
*	Di-n-octylphthalate	1.639	1.680	30.760	30.0	3*
	Dibenz(a,j)acridine	0.910	0.942	31.070	30.0	4
	7,12-Dimethylbenz[a]anthracene	0.498	0.564	34.000	30.0	13
	Quinoline	0.775	0.802	31.040	30.0	3
	Benzo(b)fluoranthene	1.258	1.296	30.920	30.0	3
	Benzo(k)fluoranthene	1.229	1.269	30.960	30.0	3
*	Benzo(a)pyrene	1.108	1.123	30.410	30.0	1*
	3-Methylcholanthrene	0.586	0.604	30.920	30.0	3
	NDPA as diphenylamine	0.652	0.667	30.690	30.0	2
	Indeno(1,2,3-cd)pyrene	1.183	1.197	30.350	30.0	1
	Dibenz(a,h)anthracene	0.999	1.014	30.450	30.0	2
	Benzo(g,h,i)perylene	1.002	1.010	30.220	30.0	1
	Indene	2.688	2.305	25.730	30.0	-14
	2-Fluorophenol	1.451	1.477	30.540	30.0	2
	Phenol-d5	2.180	2.245	30.890	30.0	3
	Phenol-d6	2.180	2.245	30.890	30.0	3
	Nitrobenzene-d5	0.429	0.431	30.150	30.0	0
	2-Fluorobiphenyl	1.194	1.199	30.140	30.0	0
	2,4,6-Tribromophenol	0.129	0.117	27.270	30.0	-9
	Terphenyl-d14	0.695	0.688	29.680	30.0	-1

Average %Drift: 4

BHR80 8213

FORM VII SV-1

Continuing Calibration
Internal Standard Area and Retention Time
Summary

Initial Calibration Standards:

/chem/HP09910.i/11dec08b.b/ol0411a.d
/chem/HP09910.i/11dec08b.b/ol0412.d
/chem/HP09910.i/11dec08b.b/ol0413.d
/chem/HP09910.i/11dec08b.b/ol0414.d
/chem/HP09910.i/11dec08b.b/ol0415.d
/chem/HP09910.i/11dec08b.b/ol0416.d **
/chem/HP09910.i/11dec08b.b/ol0417.d
/chem/HP09910.i/11dec08b.b/ol0418.d

** indicates the Mid Level Calibration Standard.

Mid Level Calibration Standard is used for comparison.

Current Continuing Calibration Standard:

/chem/HP09910.i/11dec20.b/ol0871.d

Area Summary

File ID:

Internal Standard Name	ol0871.d	ICAL Area	Low Limit	High Limit	In Spec
1,4-Dichlorobenzene-d4	89070	73826	36913	147652	Yes
Naphthalene-d8	418133	337841	168920	675682	Yes
Acenaphthene-d10	276843	222372	111186	444744	Yes
Phenanthrene-d10	504863	404997	202498	809994	Yes
Pyrene-d10	592790	497005	248502	994010	Yes
Perylene-d12	417800	376637	188318	753274	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

RT Summary

File ID:

Internal Standard Name	ol0871.d	ICAL RT	In Spec
1,4-Dichlorobenzene-d4	5.840	6.198	Yes
Naphthalene-d8	7.098	7.457	Yes
Acenaphthene-d10	8.822	9.186	Yes
Phenanthrene-d10	10.281	10.651	Yes
Pyrene-d10	11.669	12.057	Yes
Perylene-d12	14.316	14.786	Yes

A "No" indicates the retention time is greater than 30 seconds from the RT of the referenced standard.

Comments: MB/1986

DHRBG 8214

12/20/11

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: LANCASTER LABS Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID (Standard): ol0741.d Date Analyzed: 12/16/11

Instrument ID: HP09910 Time Analyzed: 02:15

	IS1(DCB)		IS2(NPT)		IS3(ANT)	
	AREA #	RT #	AREA #	RT #	AREA #	RT #
12 HOUR STD	89227	5.945	408917	7.204	262991	8.928
UPPER LIMIT	178454	6.445	817834	7.704	525982	9.428
LOWER LIMIT	44614	5.445	204459	6.704	131496	8.428
LLI SAMPLE NO.						
01 SBLKLD349	76519	5.946	323537	7.198	201730	8.928
02 349LDLCS	84931	5.946	362241	7.198	230950	8.928
03 349LDLCSD	82218	5.945	359682	7.198	232505	8.927
04 SBLKLA349	77053	5.945	329017	7.198	210948	8.928
05 349LALCS	90640	5.946	404440	7.198	253714	8.928
06 6477411	77050	5.945	353742	7.198	228192	8.922
07 6477411MS	79077	5.939	356256	7.198	228195	8.922
08 6477411MSD	83419	5.945	382353	7.198	244888	8.928
09 6499035	86243	5.945	384711	7.198	242091	8.922
10 6499036MS	85646	5.945	382845	7.198	242536	8.928
11 6499037MSD	89627	5.945	401560	7.204	249838	8.928
12 6499034	89111	5.945	391993	7.198	251195	8.928
13 6499039	95075	5.945	417376	7.198	268264	8.928
14 6499040	87309	5.945	391726	7.198	249695	8.922
15 6499041	85617	5.945	379490	7.198	244570	8.922
16 6499042	82197	5.945	362304	7.198	233780	8.922
17 6499043	84513	5.946	375402	7.198	233976	8.922

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT (advisory) = +100% of internal standard area
AREA LOWER LIMIT (advisory) = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard are and RT values with an asterisk
* Values outside of QC limits.

DHR80 0215

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: LANCASTER LABS Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID (Standard): ol0741.d Date Analyzed: 12/16/11

Instrument ID: HP09910 Time Analyzed: 02:15

		IS4(PHN)			IS5(PYR)			IS6(PRY)		
		AREA	#	RT	#	AREA	#	RT	#	AREA	#	RT	#
	12 HOUR STD	449359		10.392		512855		11.786		363453		14.457	
	UPPER LIMIT	898718		10.892		1025710		12.286		726906		14.957	
	LOWER LIMIT	224680		9.892		256428		11.286		181727		13.957	
	LLI SAMPLE NO.												
01	SBLKLD349	373532		10.386		433122		11.780		315086		14.451	
02	349LDLCS	399453		10.386		461639		11.786		328053		14.457	
03	349LDLCSD	407132		10.386		465625		11.786		306533		14.457	
04	SBLKLA349	381740		10.386		438847		11.780		306425		14.451	
05	349LALCS	441029		10.386		498140		11.786		328032		14.457	
06	6477411	400728		10.386		476455		11.780		328483		14.451	
07	6477411MS	399177		10.386		462111		11.780		306277		14.451	
08	6477411MSD	420147		10.386		484017		11.780		329221		14.451	
09	6499035	413491		10.386		467271		11.780		294617		14.451	
10	6499036MS	405072		10.386		449392		11.786		278341		14.457	
11	6499037MSD	411562		10.386		451265		11.786		286578		14.457	
12	6499034	430191		10.386		478574		11.780		296702		14.451	
13	6499039	473908		10.386		519996		11.780		330969		14.451	
14	6499040	438649		10.386		480028		11.780		299366		14.451	
15	6499041	426570		10.386		472844		11.780		303123		14.451	
16	6499042	401768		10.386		439610		11.780		284296		14.451	
17	6499043	401622		10.386		452577		11.780		289562		14.451	

IS4 (PHN) = Phenanthrene-d10
IS5 (PYR) = Pyrene-d10
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT (advisory) = +100% of internal standard area
AREA LOWER LIMIT (advisory) = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard are and RT values with an asterisk
* Values outside of QC limits.

DH868 6216

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: LANCASTER LABS Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID (Standard): o10741.d Date Analyzed: 12/16/11

Instrument ID: HP09910 Time Analyzed: 02:15

		IS1(DCB)			IS2(NPT)			IS3(ANT)		
		AREA	#	RT	#	AREA	#	RT	#	AREA	#	RT	#
	12 HOUR STD	89227		5.945		408917		7.204		262991		8.928	
	UPPER LIMIT	178454		6.445		817834		7.704		525982		9.428	
	LOWER LIMIT	44614		5.445		204459		6.704		131496		8.428	
	LLI SAMPLE NO.												
18	6499044	86452		5.946		387484		7.198		243807		8.922	
19	6499045	85789		5.945		374646		7.198		237589		8.922	
20	6499046	95670		5.946		423693		7.198		260227		8.922	
21	6499047	81302		5.945		360677		7.198		226215		8.922	
22	6499048	88025		5.940		387766		7.198		240148		8.922	
23	6499049	80232		5.939		353403		7.198		217106		8.922	
24	6499050	87249		5.945		381860		7.198		241622		8.922	
25	6499051	81683		5.940		356646		7.198		220107		8.922	
26	6499052	83801		5.945		354554		7.198		215383		8.922	

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT (advisory) = +100% of internal standard area
AREA LOWER LIMIT (advisory) = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard are and RT values with an asterisk
* Values outside of QC limits.

DNR00 0217

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: LANCASTER LABS Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID (Standard): ol0741.d Date Analyzed: 12/16/11

Instrument ID: HP09910 Time Analyzed: 02:15

		IS4(PHN)			IS5(PYR)			IS6(PRY)		
		AREA	#	RT	#	AREA	#	RT	#	AREA	#	RT	#
	12 HOUR STD	449359		10.392		512855		11.786		363453		14.457	
	UPPER LIMIT	898718		10.892		1025710		12.286		726906		14.957	
	LOWER LIMIT	224680		9.892		256428		11.286		181727		13.957	
	LLI SAMPLE NO.												
18	6499044	427077		10.386		476432		11.780		301799		14.451	
19	6499045	408669		10.386		458026		11.780		292768		14.451	
20	6499046	461200		10.386		516594		11.780		320543		14.451	
21	6499047	389694		10.386		442033		11.780		280950		14.451	
22	6499048	413244		10.386		461506		11.780		311369		14.451	
23	6499049	378507		10.380		424589		11.780		280621		14.451	
24	6499050	408323		10.386		451910		11.780		283874		14.451	
25	6499051	389744		10.386		438855		11.780		277576		14.451	
26	6499052	376373		10.380		411079		11.780		281847		14.451	

IS4 (PHN) = Phenanthrene-d10
IS5 (PYR) = Pyrene-d10
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT (advisory) = +100% of internal standard area
AREA LOWER LIMIT (advisory) = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard are and RT values with an asterisk
* Values outside of QC limits.

DHR08 0218

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: LANCASTER LABS Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID (Standard): ol0871.d Date Analyzed: 12/20/11

Instrument ID: HP09910 Time Analyzed: 15:47

	IS1(DCB) AREA	#	RT	#	IS2(NPT) AREA	#	RT	#	IS3(ANT) AREA	#	RT	#
	12 HOUR STD		89070		5.840		418133		7.098		276843		8.822	
	UPPER LIMIT		178140		6.340		836266		7.598		553686		9.322	
	LOWER LIMIT		44535		5.340		209067		6.598		138422		8.322	
	LL1 SAMPLE NO.													
01	SBLKWA353		67591		5.840		306640		7.092		206799		8.822	
02	353WALCS		74789		5.840		359646		7.098		236967		8.822	
03	353WALCSD		75456		5.839		352135		7.098		236429		8.822	
04	6498981		70518		5.840		319916		7.098		216672		8.822	
05	6498983		73150		5.840		327491		7.093		218331		8.822	
06	6499033		72191		5.840		327936		7.092		219715		8.822	
07	6500129		74555		5.840		342895		7.092		223192		8.822	
08	6500130		75267		5.840		348714		7.092		232867		8.822	
09	6500131		75966		5.840		353570		7.098		234816		8.822	
10	6500133		70650		5.839		325916		7.098		216740		8.822	
11	6500134		81067		5.840		357179		7.098		233304		8.822	
12	6500144		73420		5.839		340624		7.098		220506		8.822	
13	6500552		81287		5.839		368729		7.092		240657		8.816	
14	6500839		83041		5.839		387916		7.098		247872		8.822	
15	6500840		85590		5.840		400830		7.092		260995		8.816	
16	6500843		78192		5.839		365735		7.098		234971		8.822	

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT (advisory) = +100% of internal standard area
AREA LOWER LIMIT (advisory) = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard are and RT values with an asterisk
* Values outside of QC limits.

DHR66 8219

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: LANCASTER LABS Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID (Standard): o10871.d Date Analyzed: 12/20/11

Instrument ID: HP09910 Time Analyzed: 15:47

	IS4(PHN)		IS5(PYR)		IS6(PRY)	
	AREA #	RT #	AREA #	RT #	AREA #	RT #
12 HOUR STD	504863	10.281	592790	11.669	417800	14.316
UPPER LIMIT	1009726	10.781	1185580	12.169	835600	14.816
LOWER LIMIT	252432	9.781	296395	11.169	208900	13.816
LLI SAMPLE NO.						
01 SBLKWA353	381087	10.275	435374	11.663	309670	14.315
02 353WALCS	410596	10.280	447417	11.669	280426	14.315
03 353WALCSD	402786	10.280	464824	11.668	291125	14.315
04 6498981	404439	10.275	479606	11.663	342736	14.315
05 6498983	414017	10.275	485278	11.663	346467	14.316
06 6499033	409127	10.275	470682	11.663	331504	14.310
07 6500129	405077	10.275	484440	11.669	363592	14.315
08 6500130	420547	10.275	478727	11.663	346674	14.316
09 6500131	413873	10.275	465522	11.663	327038	14.316
10 6500133	383018	10.274	441433	11.663	314005	14.310
11 6500134	405611	10.275	464957	11.669	313888	14.315
12 6500144	392980	10.274	455490	11.663	311435	14.310
13 6500552	418155	10.274	464655	11.663	330280	14.315
14 6500839	440074	10.274	502756	11.663	335648	14.309
15 6500840	447218	10.275	489625	11.663	326775	14.310
16 6500843	404251	10.274	452453	11.669	304642	14.315

IS4 (PHN) = Phenanthrene-d10
IS5 (PYR) = Pyrene-d10
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT (advisory) = +100% of internal standard area
AREA LOWER LIMIT (advisory) = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard are and RT values with an asterisk
* Values outside of QC limits.

DHR88 6228

Lancaster Laboratories
Semi-Volatiles

Runlog for Hewlett Packard GC/MS System HP09910 **HP #15**

*** Shift #1 Analyst:_____ *** Shift #2 Analyst: JRR/2820

Comment Code:
R = Reinjection necessary
S = Surrogate problem
NU = Not used
MR = Meets requirements
Cz = Confirms z, (z = I or X)
X = Sample sent to be reextracted
I = Internal Standard problem
F = Further dilution required
IUO = Internal use only
T = Injected outside valid tune period

Other problems or comments are as follows:

Data Directory Path is - C:\MSDCHEM\1\DATA\11dec08b\

ALS Btl #	Laboratory File ID	Client ID	Lab Sample ID	Date injected	Time injected	Case and SDG Number or Extraction Batch Number	Dilution Factor	Comments
1	ol0410.D	DFTPP	DFTPP3131	08 Dec 2011	16:14			mr
2	ol0411.D	SSTD030	STD3321	08 Dec 2011	16:28			nu
2	ol0411a.D	SSTD030	STD3321	08 Dec 2011	16:53			mr
3	ol0412.D	SSTD0.5	STD3321	08 Dec 2011	17:20			mr
4	ol0413.D	SSTDi20	STD3321	08 Dec 2011	17:46			mr
5	ol0414.D	SSTD080	STD3321	08 Dec 2011	18:11			mr
6	ol0415.D	SSTD050	STD3321	08 Dec 2011	18:36			mr
7	ol0416.D	SSTD015	STD3321	08 Dec 2011	19:01			mr
8	ol0417.D	SSTD005	STD3321	08 Dec 2011	19:26			mr
9	ol0418.D	SSTD001	STD3321	08 Dec 2011	19:51			mr
3	ol0419.D	MDL0.5	MDLSTD3321	08 Dec 2011	20:17			mr
10	ol0420.D	MDL0.1	MDLSTD3321	08 Dec 2011	20:42			mr
11	ol0421.D	ICV050	ICV2691	08 Dec 2011	21:07			mr
12	ol0422.D	BASICV050	BASICV2971	08 Dec 2011	21:33			mr
13	ol0423.D	SSTD050	BENZ3421	08 Dec 2011	21:58			mr
14	ol0424.D	SSTD120	BENZ3421	08 Dec 2011	22:23			mr
15	ol0425.D	SSTD080	BENZ3421	08 Dec 2011	22:48			mr
16	ol0426.D	SSTD030	BENZ3421	08 Dec 2011	23:14			mr
17	ol0427.D	SSTD015	BENZ3421	08 Dec 2011	23:39			mr
18	ol0428.D	SSTD005	BENZ3421	09 Dec 2011	00:04			mr
19	ol0429.D	MDL001	BENZMDL3421	09 Dec 2011	00:29			mr
20	ol0430.D	ICV050	BENZICV3421	09 Dec 2011	00:54			mr

Lancaster Laboratories
Semi-Volatiles

Runlog for Hewlett Packard GC/MS System HP09910 **HP #15**

*** Shift #1 Analyst: BG *** Shift #2 Analyst: *

Comment Code:

R = Reinjection necessary	X =	Sample sent to be reextracted
S = Surrogate problem	I =	Internal Standard problem
NU = Not used	F =	Further dilution required
MR = Meets requirements	IUO =	Internal use only
Cz = Confirms z, (z = I or X)	T =	Injected outside valid tune period

Other problems or comments are as follows:

*

*

*

*

Data Directory Path is - C:\MSDCHEM\1\DATA\11dec16\

ALS Btl #	Laboratory File ID	Client ID	Lab Sample ID	Date injected	Time injected	Case and SDG Number or Extraction Batch Number	Dilution Factor	Comments
1	o10740.D	DFTPP	DFTPP3131	16 Dec 2011	02:01			mr
2	o10741.D	SSTD030	STD3461	16 Dec 2011	02:15			mr
11	o10742.D	SBLKLD349O	SBLKLD349	16 Dec 2011	02:40	11349SLD		mr
12	o10743.D	349LDLCSO	349LDLCS	16 Dec 2011	03:06	11349SLD		mr
13	o10744.D	349LDLCSDO	349LDLCSD	16 Dec 2011	03:32	11349SLD		mr
17	o10748.D	SBLKLA349O	SBLKLA349	16 Dec 2011	03:58	11349SLA		mr
18	o10749.D	349LALCSO	349LALCS	16 Dec 2011	04:23	11349SLA		mr
14	o10745.D	XXXXX	6477411	16 Dec 2011	04:49	11349SLD		mr
15	o10746.D	XXXXXMS	6477411	16 Dec 2011	05:14	11349SLD		mr
16	o10747.D	XXXXXMSD	6477411	16 Dec 2011	05:40	11349SLD		mr
19	o10750.D	XXXXX	6499035	16 Dec 2011	06:05	11349SLA		mr
20	o10751.D	XXXXXMS	6499036	16 Dec 2011	06:30	11349SLA		mr
21	o10752.D	XXXXXMSD	6499037	16 Dec 2011	06:56	11349SLA		mr
22	o10753.D	XXXXX	6499034	16 Dec 2011	07:21	11349SLA		mr
23	o10754.D	XXXXX	6499039	16 Dec 2011	07:46	11349SLA		mr
24	o10755.D	XXXXX	6499040	16 Dec 2011	08:12	11349SLA		mr
25	o10756.D	XXXXX	6499041	16 Dec 2011	08:37	11349SLA		mr
26	o10757.D	XXXXX	6499042	16 Dec 2011	09:03	11349SLA		mr
27	o10758.D	XXXXX	6499043	16 Dec 2011	09:28	11349SLA		mr
28	o10759.D	XXXXX	6499044	16 Dec 2011	09:54	11349SLA		mr
29	o10760.D	XXXXX	6499045	16 Dec 2011	10:20	11349SLA		mr
30	o10761.D	XXXXX	6499046	16 Dec 2011	10:45	11349SLA		mr
31	o10762.D	XXXXX	6499047	16 Dec 2011	11:11	11349SLA		mr
32	o10763.D	XXXXX	6499048	16 Dec 2011	11:36	11349SLA		mr
33	o10764.D	XXXXX	6499049	16 Dec 2011	12:02	11349SLA		mr
34	o10765.D	XXXXX	6499050	16 Dec 2011	12:26	11349SLA		mr
35	o10766.D	XXXXX	6499051	16 Dec 2011	12:51	11349SLA		mr
36	o10767.D	XXXXX	6499052	16 Dec 2011	13:17	11349SLA		mr

DRR88 8222

Lancaster Laboratories
Semi-Volatiles

Runlog for Hewlett Packard GC/MS System HP09910 **HP #15**

*** Shift #1 Analyst: BC *** Shift #2 Analyst: HB *

Comment Code:

R	=	Reinjection necessary	X	=	Sample sent to be reextracted
S	=	Surrogate problem	I	=	Internal Standard problem
NU	=	Not used	F	=	Further dilution required
MR	=	Meets requirements	IUO	=	Internal use only
Cz	=	Confirms z, (z = I or X)	T	=	Injected outside valid tune period

Other problems or comments are as follows:

_____

_____

_____

_____

Data Directory Path is - C:\MSDCHEM\1\DATA\11dec20\

ALS Btl #	Laboratory File ID	Client ID	Lab Sample ID	Date injected	Time injected	Case and SDG Number or Extraction Batch Number	Dilution Factor	Comments
1	o10870.D	DFTPP	DFTPP3471	20 Dec 2011	15:20			nu
1	o10870Z.D	DFTPP	DFTPP3471	20 Dec 2011	15:34			mr
2	o10871.D	SSTD030	STD3461	20 Dec 2011	15:47			mr
3	o10872.D	SSTD050	BAS3151	20 Dec 2011	16:12			mr
4	o10873.D	SSTD050	DAT3491	20 Dec 2011	16:37			mr
5	o10874.D	SBLKWA3530	SBLKWA353	20 Dec 2011	17:02	11353WAA		mr
6	o10875.D	353WALCSO	353WALCS	20 Dec 2011	17:28	11353WAA		mr
7	o10876.D	353WALCSDO	353WALCSD	20 Dec 2011	17:53	11353WAA		mr
8	o10877.D	XXXXX	6498981	20 Dec 2011	18:18	11353WAA		mr
9	o10878.D	XXXXX	6498983	20 Dec 2011	18:43	11353WAA		mr
10	o10879.D	XXXXX	6499033	20 Dec 2011	19:09	11353WAA		mr
11	o10880.D	XXXXX	6500129	20 Dec 2011	19:34	11353WAA		mr
12	o10881.D	XXXXX	6500130	20 Dec 2011	19:59	11353WAA		mr
13	o10882.D	XXXXX	6500131	20 Dec 2011	20:24	11353WAA		mr
14	o10883.D	XXXXX	6500133	20 Dec 2011	20:50	11353WAA		mr
15	o10884.D	XXXXX	6500134	20 Dec 2011	21:15	11353WAA		mr
16	o10885.D	XXXXX	6500144	20 Dec 2011	21:40	11353WAA		mr
17	o10886.D	XXXXX	6500552	20 Dec 2011	22:05	11353WAA		mr
18	o10887.D	XXXXX	6500839	20 Dec 2011	22:30	11353WAA		mr
19	o10888.D	XXXXX	6500840	20 Dec 2011	22:56	11353WAA		mr
20	o10889.D	XXXXX	6500841	20 Dec 2011	23:21	11353WAA		nu
21	o10890.D	XXXXX	6500842	20 Dec 2011	23:47	11353WAA		nu
22	o10891.D	XXXXX	6500843	21 Dec 2011	00:12	11353WAA		mr
23	o10892.D	XXXXX	6500844	21 Dec 2011	00:38	11353WAA		nu

DHR88 [illegible]

Extraction/Distillation/Digestion Logs

Organic Extraction Batchlog Assigned to: 2894 David Schrum Reviewed by: BGM 12-16-11 Start Date: 12/15/11 Start time: 15:30

11349SLA026 Tech 1: DS 2894 Tech 2:

Dept: 26 Prep Analysis: 10809 BNA Soil Microwave TCL 8270 (microwave)

QC	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (mL)	pH	pH	BC	Comments
6499036MS	40305	30.0	SS1133326A	1.0	MS1134226A	1.0	1.0	Z	Z	34A	brown clay
6499037MSD	40305	30.0	SS1133326A	1.0	MS1134226A	1.0	1.0	Z	Z	34A	↓ ↓
BLANKA	SBLKSA349	30.0	SS1133326A	1.0			1.0	Z	Z	Z	Na_2SO_4
LCSA	LCSSA349	30.0	SS1133326A	1.0	MS1134226A	1.0	1.0	Z	Z	Z	↓ ↓

Solvent Used	Lot No.
1:1 Methylene Chloride/Acetone	185112911A
Methylene Chloride	116194
Sodium Sulfate	11349A

Spike Solutions: Witness: N/A
MS1134226A LCS SPIKE MIX
SS1133326A BNA SURROGATE STANDARD

	Sample #	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	FV (mL)	pH	pH	BC	Comments	Analyses	Due Date	Prio
1	6499034	40002	30.0	SS1133326A	1.0	1.0	Z	Z	34A	brown clay	10727	12/28/2011	N
2	6499035BKG	40305	30.0	SS1133326A	1.0	1.0	Z	Z	34A	↓ ↓	10727	12/28/2011	N
3	6499039	40810	30.0	SS1133326A	1.0	1.0	Z	Z	34A	↓ ↓	10727	12/28/2011	N
4	6499040	30002	30.0	SS1133326A	1.0	1.0	Z	Z	34A	↓ ↓	10727	12/28/2011	N
5	6499041	30305	30.0	SS1133326A	1.0	1.0	Z	Z	34A	↓ ↓	10727	12/28/2011	N
6	6499042	30810	30.0	SS1133326A	1.0	1.0	Z	Z	34A	brown muddy clay	10727	12/28/2011	N
7	6499043	20002	30.0	SS1133326A	1.0	1.0	Z	Z	34A	brown clay	10727	12/28/2011	N
8	6499044	HGRD-	30.0	SS1133326A	1.0	1.0	Z	Z	34A	↓ ↓	10727	12/28/2011	N
9	6499045	20305	30.0	SS1133326A	1.0	1.0	Z	Z	34A	↓ ↓	10727	12/28/2011	N
10	6499046	20810	30.0	SS1133326A	1.0	1.0	Z	Z	34A	↓ ↓	10727	12/28/2011	N
11	6499047	10002	30.0	SS1133326A	1.0	1.0	Z	Z	34A	↓ ↓	10727	12/28/2011	N
12	6499048	10308	30.0	SS1133326A	1.0	1.0	Z	Z	34A	↓ ↓	10727	12/28/2011	N
13	6499049	10810	30.0	SS1133326A	1.0	1.0	Z	Z	34A	wet muddy clay	10727	12/28/2011	N
14	6499050	50002	30.0	SS1133326A	1.0	1.0	Z	Z	34A	↓ ↓	10727	12/28/2011	N
15	6499051	50305	30.0	SS1133326A	1.0	1.0	Z	Z	34A	↓ ↓	10727	12/28/2011	N
16	6499052	50810	30.0	SS1133326A	1.0	1.0	Z	Z	34A	↓ ↓	10727	12/28/2011	N

DS 2894 12/15/11

Rack ID:		Work Station	Micro
Internal Standard	LB67908	Balance #	10879

S-bath ID	6 90°C	S-bath ID	C	N-Evap	C	M-vap	C	11349SLA026

Documented temps are NIST corrected.

DF = Dilution Factor FV = Final Volume

Organic Extraction Batchlog Assigned to: 463 Elaine Stoltzfus Reviewed by: HB 12/20/11 Start Date: 12-19-11 Start time: 22:00

11353WAA026

Tech 1: es463 Tech 2: _____

Dept: 26 Prep Analysis: 00813 BNA Water Extraction TCL SW846 Semivolatiles/Waters

QC	Sample Code	Amt (mL)	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (mL)	pH 2	pH 11	BC	Comments
BLANKA	SBLKWA353	1000	SS1133326A	1	—	—	1	✓	✓	—	tap H2O
LCSA	LCSWA353	1000	SS1133326A	1	MS1131826A MS1134226A	2.0 1.0	1	✓	✓	—	↓
LCSDA	LCSDWA353	1000	SS1133326A	1	MS1131826A MS1134226A	2.0 1.0	1	✓	✓	—	↓

Solvent Used	Lot No.
10N NaOH	101 0018
Methylene Chloride	116194
Sodium Sulfate	11353A
Sulfuric Acid	111682
—	—

Spike Solutions: Witness: N/A

MS1131826A DAT SPIKE
MS1134226A LCS SPIKE MIX
SS1133326A BNA SURROGATE STANDARD

	Sample #	Sample Code	Amt (mL)	SS/IS Sol.	Amt (mL)	FV (mL)	pH 2	pH 11	BC	Comments	Emulsion	cont	Analyses	Due Date	Prio
1	6498981	FBD13	1003	SS1133326A	1	1	✓	✓	43A	clear			04678	12/28/2011	P
2	6498983	BDD13	1047	SS1133326A	1	1	✓	✓	43A	yellow tint	✓	3 X	04678	12/28/2011	P
3	6499033	HGRE-	1032	SS1133326A	1	1	✓	✓	43A	clear			04678	12/28/2011	N
5 4	6500129	-P4A1	1025	SS1133326A	1	1	✓	✓	43A	orange	✓	3 X	04678	12/28/2011	P
10 5	6500130	-P1A1	1007	SS1133326A	1	1	✓	✓	43A	brown	✓	3 X	04678	12/28/2011	P
6	6500131	1214F	1018	SS1133326A	1	1	✓	✓	43A	clear			04678	12/28/2011	P
10 7	6500133	-P3A1	1049	SS1133326A	1	1	✓	✓	43A	brownish yellow	✓	3 X	04678	12/28/2011	P
10 8	6500134	-P5A1	960	SS1133326A	1	1	✓	✓	43A	oily, brown	✓	3 X	04678	12/28/2011	P
9	6500144	EC759	988	SS1133326A	1	1	✓	✓	43A	yellow tint			04678, 382	12/23/2011	P
10	6500552	HG14E	1046	SS1133326A	1	1	✓	✓	43A	clear			04678	12/29/2011	N
11	6500839 *	SB17P	200	SS1133326A	1	1	✓	✓	43A	thick, brown	✓	1 X	04678	12/29/2011	N
12	6500840 *	SB17A	200	SS1133326A	1	1	✓	✓	43A	↓	✓	1 X	04678	12/29/2011	N
13	6500841 *	SB18A	100	SS1133326A	1	1	✓	✓	43A	↓	✓	5 X	04678 odors	12/29/2011	N
14	6500842 *	SB11A	100	SS1133326A	1	1	✓	✓	43A	↓	✓	2 X	04678	12/29/2011	N
15	6500843 *	SB13P	200	SS1133326A	1	1	✓	✓	43A	↓	✓	4 X	04678	12/29/2011	N
16	6500844 *	SB13A	100	SS1133326A	1	1	✓	✓	43A	↓	✓	1 X	04678	12/29/2011	N

*Sample volume reduced due to sample matrix es463 12-19-11

Difficult Batch

$MgCl_2$ lot #115543 used for dilutions HB 12/20/11

Rack ID	—	Work Station	H2O Bench 5
Internal Standard	LB87908	Balance #	—

S-bath ID 11 88 C 12/20/11 S-bath ID 16981 88 C N-Evap C M-vap C 11353WAA026

Documented temps are NIST corrected.

DF = Dilution Factor FV = Final Volume

Metals in Liquid Data

DHR88 8227

Case Narrative
Conformance/Non-Conformance

eurofins | Lancaster Laboratories

CASE NARRATIVE FOR INORGANICS

Laboratory Name: Lancaster Laboratories

SDG Number: DHR08W

Date Received: 12/14/2011

Dilutions:

Refer to the analysis run logs for samples requiring dilutions.

Explanatory Notes:

The instrument detection limits (IDLs) are used for determining the U flags on the initial and continuing calibration blanks. The highest IDL is selected when multiple instruments are used for an analysis. The method detection limits (MDLs) are used for determining all other U flags.

Data Package Assembly:

This sample delivery group was separated by matrix into two data packages, DHR08S and DHR08W, due to limitations of the data package generating software.

Narrative Reviewed and Approved 01-19-12 by
(Date)

Betty L. Umble
Specialist

Sample Data

eurofins | Lancaster Laboratories

QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: DHR08
Matrix: WATER Level (low/med): LOW

Lab Sample ID: 6499033 % Solids: 0.0
Concentration Units: UG/L Date Received: 12/14/2011

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	0.95	U		MS
7440-39-3	Barium	0.26	U		P
7440-43-9	Cadmium	0.27	U		P
7440-47-3	Chromium	1.1	U		P
7439-92-1	Lead	2.2	U		P
7439-97-6	Mercury	0.026	U		CV
7782-49-2	Selenium	6.9	U		P
7440-22-4	Silver	0.91	U		P

Comments:

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer MS = ICP Mass Spectrometry CV = Cold Vapor AF = Cold Vapor Atomic Fluorescence NR = Not Required	U = Below MDL, B = Below LOQ

Quality Control and Calibration Summary Forms

DHR88 0232

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QUALITY CONTROL REFERENCE LIST

SDG No.: DHR08
Matrix: WATER

Analyte	Batch ID	Lab Sample ID
Barium	P34905B	6499033
Cadmium		P34905BB
Chromium		P34905BQ
Lead		
Selenium		
Silver		

LEGEND:

BKG = Background	B = Blank
DUP = Duplicate	Q = Laboratory Control Sample
MS = Matrix Spike	Y = Laboratory Control Sample Duplicate
MSD = Matrix Spike Duplicate	

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QUALITY CONTROL REFERENCE LIST

SDG No.: DHR08
Matrix: WATER

Analyte	Batch ID	Lab Sample ID
Arsenic	P34950A	6499033
		P34950AB
		P34950AQ

LEGEND:

BKG = Background	B = Blank
DUP = Duplicate	Q = Laboratory Control Sample
MS = Matrix Spike	Y = Laboratory Control Sample Duplicate
MSD = Matrix Spike Duplicate	

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QUALITY CONTROL REFERENCE LIST

SDG No.: DHR08
Matrix: WATER

Analyte	Batch ID	Lab Sample ID
Mercury	P34913C	6499033
		P34913CB
		P34913CQ

LEGEND:

BKG = Background	B = Blank
DUP = Duplicate	Q = Laboratory Control Sample
MS = Matrix Spike	Y = Laboratory Control Sample Duplicate
MSD = Matrix Spike Duplicate	

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: DHR08

Method: P
Run Name: 1135102T72
Calibration Date(s): 12/17/2011
Concentration Units: UG/L

Analyte	Mass	Initial Calibration			Continuing Calibration					
		True	Found	%R(1)	True	Found	%R(2)	True	Found	%R(2)
Barium		600.0	587.46	97.9	500.0	493.15	98.6	500.0	492.88	98.6
Cadmium		600.0	586.66	97.8	500.0	492.18	98.4	500.0	496.09	99.2
Chromium		600.0	592.85	98.8	500.0	494.92	99.0	500.0	504.53	100.9
Lead		600.0	583.02	97.2	500.0	488.78	97.8	500.0	494.27	98.9
Selenium		600.0	588.98	98.2	500.0	492.11	98.4	500.0	499.32	99.9
Silver		600.0	582.22	97.0	500.0	486.26	97.3	500.0	492.46	98.5

(1) Control Limits: 90 - 110
(2) Control Limits: 90 - 110

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: DHR08

Method: P
Run Name: 1135102T72
Calibration Date(s): 12/17/2011
Concentration Units: UG/L

Analyte	Mass	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(2)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(2)
Barium					500.0	489.86	98.0			
Cadmium					500.0	497.74	99.5			
Chromium					500.0	500.86	100.2			
Lead					500.0	495.45	99.1			
Selenium					500.0	500.23	100.0			
Silver					500.0	490.35	98.1			

(1) Control Limits: 90 - 110
(2) Control Limits: 90 - 110

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: DHR08

Method: MS
Run Name: 1135304E03
Calibration Date(s): 12/19/2011
Concentration Units: UG/L

		Initial Calibration			Continuing Calibration					
Analyte	Mass	True	Found	%R(1)	True	Found	%R(2)	True	Found	%R(2)
Arsenic	75	500.0	483.70	96.7	250.0	244.40	97.8	250.0	254.40	101.8

(1) Control Limits: 90 - 110
(2) Control Limits: 90 - 110

DHR08 R238

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: DHR08

Method: MS
Run Name: 1135304E03
Calibration Date(s): 12/19/2011
Concentration Units: UG/L

Analyte	Mass	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(2)	True	Found	%R(2)
Arsenic	75				250.0	273.60	109.4	250.0	265.90	106.4

(1) Control Limits: 90 - 110
(2) Control Limits: 90 - 110

DHR08 0235

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: DHR08

Method: CV
Run Name: 1135301M07
Calibration Date(s): 12/19/2011
Concentration Units: UG/L

Analyte	Mass	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(2)	True	Found	%R(2)
Mercury		2.5	2.49	99.6	1.0	0.98	98.0	1.0	0.97	97.0

(1) Control Limits: 90 - 110
(2) Control Limits: 80 - 120

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: DHR08

Method: CV
Run Name: 1135301M07
Calibration Date(s): 12/19/2011
Concentration Units: UG/L

Analyte	Mass	Initial Calibration			Continuing Calibration					
		True	Found	%R(1)	True	Found	%R(2)	True	Found	%R(2)
Mercury					1.0	0.95	95.0	1.0	0.93	93.0

(1) Control Limits: 90 - 110
(2) Control Limits: 80 - 120

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2B
LOW LEVEL CHECK STANDARD
SDG No.: DHR08

Method: P
Run Name: 1135102T72
Calibration Date(s): 12/17/2011
Concentration Units: UG/L

Analyte	Mass	Initial True	Initial Found	Initial %R	Final Found	Final %R
Barium		5.0	5.28	105.6	5.25	105.0
Cadmium		5.0	5.00	100.0	5.03	100.6
Chromium		15.0	15.52	103.5	15.66	104.4
Lead		15.0	16.12	107.5	16.38	109.2
Selenium		20.0	18.27	91.4	19.63	98.2
Silver		5.0	4.37	87.4	5.23	104.6

Control limits: 50% - 150%

For 6010B - Control limits apply to values up to 10 times the true value of the low level check standard. If LLC is out of specification, high, results < RL are acceptable.
For 6010C - If Low Level Check (LLC) is out of specification, results > CCV are acceptable. If LLC is out of specification, high, results < RL are acceptable.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2B
LOW LEVEL CHECK STANDARD
SDG No.: DHR08

Method: MS
Run Name: 1135304E03
Calibration Date(s): 12/19/2011
Concentration Units: UG/L

Analyte	Mass	Initial True	Initial Found	Initial %R	Final Found	Final %R
Arsenic	75	2.0	2.07	103.5	2.03	101.5

Control limits: 50% - 150%

For 6010B - Control limits apply to values up to 10 times the true value of the low level check standard. If LLC is out of specification, high, results < RL are acceptable.
For 6010C - If Low Level Check (LLC) is out of specification, results > CCV are acceptable. If LLC is out of specification, high, results < RL are acceptable.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2B
LOW LEVEL CHECK STANDARD
SDG No.: DHR08

Method: CV
Run Name: 1135301M07
Calibration Date(s): 12/19/2011
Concentration Units: UG/L

Analyte	Mass	Initial True	Initial Found	Initial %R	Final Found	Final %R
Mercury		0.2	0.20	100.0		

Control limits: 50% - 150%

For 6010B - Control limits apply to values up to 10 times the true value of the low level check standard. If LLC is out of specification, high, results < RL are acceptable.
For 6010C - If Low Level Check (LLC) is out of specification, results > CCV are acceptable. If LLC is out of specification, high, results < RL are acceptable.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: DHR08

Method: P
Run Name: 1135102T72
Calibration Date(s): 12/17/2011
Preparation Blank Matrix: WATER

Analyte	Mass	Initial Calibration Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank (UG/L) Mass		C	Lab Sample ID
Barium		0.33	U	0.33	U	0.33	U	0.33	U		0.260	U	P34905BB
Cadmium		0.33	U	0.33	U	0.33	U	0.33	U		0.270	U	P34905BB
Chromium		0.55	U	0.55	U	0.55	U	0.60	B		1.100	U	P34905BB
Lead		2.8	U	2.8	U	2.8	U	2.8	U		2.200	U	P34905BB
Selenium		2.1	U	2.1	U	2.1	U	2.1	U		6.900	U	P34905BB
Silver		0.74	U	0.74	U	0.74	U	0.74	U		0.910	U	P34905BB

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

CONCENTRATION QUALIFIERS:
U= Below IDL/MDL
B= Below LOQ

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QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: DHR08

Method: MS
Run Name: 1135304E03
Calibration Date(s): 12/19/2011
Preparation Blank Matrix: WATER

		Initial Calibration Blank (ug/L)		Continuing Calibration Blank (ug/L)						Preparation Blank (UG/L)			
Analyte	Mass		C	1	C	2	C	3	C	Mass		C	Lab Sample ID
Arsenic	75	0.40	U	0.40	U	0.40	U	0.40	U	75	0.950	U	P34950AB

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U= Below IDL/MDL
MS = ICP Mass Spectrometry	B= Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	

DHR08 18244

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QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: DHR08

Method: MS
Run Name: 1135304E03
Calibration Date(s): 12/19/2011

Analyte	Mass	Initial Calibration Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank (UG/L) Mass		C	Lab Sample ID
Arsenic	75			0.40	U								

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U= Below IDL/MDL
MS = ICP Mass Spectrometry	B= Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	

DHR08 6243

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QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: DHR08

Method: CV
Run Name: 1135301M07
Calibration Date(s): 12/19/2011
Preparation Blank Matrix: WATER

		Initial Calibration Blank (ug/L)		Continuing Calibration Blank (ug/L)						Preparation Blank (UG/L)			
Analyte	Mass		C	1	C	2	C	3	C	Mass		C	Lab Sample ID
Mercury		0.011	U	0.011	U	0.011	U	0.011	U		0.026	U	P34913CB

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U= Below IDL/MDL
MS = ICP Mass Spectrometry	B= Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	

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QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: DHR08

Method: CV
Run Name: 1135301M07
Calibration Date(s): 12/19/2011

Analyte	Mass	Initial Calibration Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank (UG/L) Mass		C	Lab Sample ID
Mercury				0.011	U								

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

CONCENTRATION QUALIFIERS:
U= Below IDL/MDL
B= Below LOQ

DHR08 0249

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QUALITY ASSURANCE SUMMARY
FORM 4A
ICP-AES INTERFERENCE CHECK SAMPLE
SDG No.: DHR08

Instrument ID: 16417
Run Name: 1135102T72
Concentration Units: ug/L

Analyte	True		Initial Found				Final Found			
	Sol. A	Sol. AB	Sol. A	%R	Sol. AB	%R	Sol. A	%R	Sol. AB	%R
Aluminum	500000	500000	505349	101.1	500821.7	100.2	513224	102.6	510867.1	102.2
Barium	0	500	0		493.8	98.8	0		496.6	99.3
Cadmium	0	1000	2		908.7	90.9	2		917.9	91.8
Calcium	500000	500000	511900	102.4	508141.4	101.6	523044	104.6	517680.1	103.5
Chromium	0	500	3		479.0	95.8	3		488.0	97.6
Iron	200000	200000	201574	100.8	201362.8	100.7	207378	103.7	205113.5	102.6
Lead	0	50	4		49.0	98.0	5		52.0	104.0
Magnesium	500000	500000	514595	102.9	508536.7	101.7	524669	104.9	516189.4	103.2
Selenium	0	50	3		52.2	104.4	4		53.1	106.2
Silver	0	200	0		210.8	105.4	0		214.6	107.3

Control Limits: All Metals 80%-120%

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QUALITY ASSURANCE SUMMARY
FORM 4B
ICP-MS INTERFERENCE CHECK SAMPLE
SDG No.: DHR08

Instrument ID: 11332
Run Name: 1135304E03
Concentration Units: ug/L

Analyte	Mass	True		Found			
		Sol. A	Sol. AB	Sol. A	%R	Sol. AB	%R
Aluminum	27	10000	10000	9226	92.3	9364.0	93.6
Arsenic	75	0	20	0		19.1	95.5
Calcium	44	10000	10000	9281	92.8	9106.0	91.1
Carbon	13	20000	20000	NA		NA	
Chloride	37	100000	100000	NA		NA	
Iron	57	10000	10000	9678	96.8	9481.0	94.8
Magnesium	24	10000	10000	9537	95.4	9404.0	94.0
Molybdenum	98	200	200	198	99.0	194.3	97.2
Phosphorus	31	10000	10000	NA		NA	
Potassium	39	10000	10000	9568	95.7	9446.0	94.5
Sodium	23	10000	10000	9599	96.0	9528.0	95.3
Sulfur	34	10000	10000	NA		NA	
Titanium	47	200	200	197	98.5	201.1	100.6

Control Limits: All Metals 80%-120%

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QUALITY ASSURANCE SUMMARY
FORM 4B
ICP-MS INTERFERENCE CHECK SAMPLE
SDG No.: DHR08

Instrument ID: 11332
Run Name: 1135304E03
Concentration Units: ug/L

Analyte	Mass	True		Found			
		Sol. A	Sol. AB	Sol. A	%R	Sol. AB	%R
Aluminum	27	10000	10000	9751	97.5	9337.0	93.4
Arsenic	75	0	20	0		21.3	106.5
Calcium	44	10000	10000	9626	96.3	9401.0	94.0
Carbon	13	20000	20000	NA		NA	
Chloride	37	100000	100000	NA		NA	
Iron	57	10000	10000	10290	102.9	9967.0	99.7
Magnesium	24	10000	10000	10070	100.7	9842.0	98.4
Molybdenum	98	200	200	212	106.0	209.1	104.6
Phosphorus	31	10000	10000	NA		NA	
Potassium	39	10000	10000	9954	99.5	9685.0	96.9
Sodium	23	10000	10000	10420	104.2	10210.0	102.1
Sulfur	34	10000	10000	NA		NA	
Titanium	47	200	200	208	104.0	204.2	102.1

Control Limits: All Metals 80%-120%

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QUALITY ASSURANCE SUMMARY
FORM 7
LABORATORY CONTROL SAMPLE
SDG No.: DHR08
Matrix: WATER

Analyte	Mass	Lab Sample ID	Units	True	Found	C	Control Limits (%)	%R	M	In Spec
Arsenic	75	P34950AQ	UG/L	10.00	10.36		86 - 111	104	MS	Yes
Barium		P34905BQ	UG/L	2000.00	2023.53		90 - 110	101	P	Yes
Cadmium		P34905BQ	UG/L	50.00	51.73		90 - 112	103	P	Yes
Chromium		P34905BQ	UG/L	200.00	202.85		90 - 110	101	P	Yes
Lead		P34905BQ	UG/L	150.00	156.98		88 - 110	105	P	Yes
Mercury		P34913CQ	UG/L	1.00	0.93		80 - 120	93	CV	Yes
Selenium		P34905BQ	UG/L	150.00	150.54		80 - 120	100	P	Yes
Silver		P34905BQ	UG/L	50.00	45.63		83 - 120	91	P	Yes

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

CONCENTRATION QUALIFIERS:
U= Below MDL
B= Below LOQ

DHR08 0259

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QUALITY ASSURANCE SUMMARY
FORM 10
INSTRUMENT DETECTION LIMITS (QUARTERLY)
SDG No.: DHR08

Method: P
Instrument ID: 16417
Date: 10/2011

Analyte	Wavelength (nm)	Background	IDL (UG/L)
Barium	455.40		0.33
Cadmium	226.50		0.33
Chromium	267.72		0.55
Lead	220.35		2.8
Selenium	196.09		2.1
Silver	328.06		0.74

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 10
INSTRUMENT DETECTION LIMITS (QUARTERLY)
SDG No.: DHR08

Method: MS
Instrument ID: 11332
Date: 10/2011

Analyte	MASS (amu)	Background	IDL (UG/L)
Arsenic	75		0.40

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 10
INSTRUMENT DETECTION LIMITS (QUARTERLY)
SDG No.: DHR08

Method: CV
Instrument ID: 17384
Date: 10/2011

Analyte	Wavelength (nm)	Background	IDL (UG/L)
Mercury	254.00		0.011

Comments:

DHR08 A256

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 10 MDL
METHOD DETECTION LIMITS (ANNUALLY)
SDG No.: DHR08
Matrix: WATER

Method: P
Date: 06/2011

Analyte	Wavelength (nm)	Background	LOQ (UG/L)	MDL (UG/L)
Barium	455.40		5.0	0.26
Cadmium	226.50		5.0	0.27
Chromium	267.72		15.0	1.1
Lead	220.35		15.0	2.2
Selenium	196.09		20.0	6.9
Silver	328.06		5.0	0.91

The LOQ/MDL must be adjusted for % Solids and Sample Weight for samples reporting in mg/kg and ug/L.

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 10 MDL
METHOD DETECTION LIMITS (ANNUALLY)
SDG No.: DHR08
Matrix: WATER

Method: MS
Date: 06/2011

Analyte	Mass	Background	LOQ (UG/L)	MDL (UG/L)
Arsenic	75		2.0	0.95

The LOQ/MDL must be adjusted for % Solids and Sample Weight for samples reporting in mg/kg and ug/L.

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 10 MDL
METHOD DETECTION LIMITS (ANNUALLY)
SDG No.: DHR08
Matrix: WATER

Method: CV
Date: 06/2011

Analyte	Wavelength (nm)	Background	LOQ (UG/L)	MDL (UG/L)
Mercury	254.00		0.20	0.026

The LOQ/MDL must be adjusted for % Solids and Sample Weight for samples reporting in mg/kg and ug/L.

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 11
ICP INTERELEMENT CORRECTION FACTORS (BIANNUALLY)
SDG No.: DHR08

Instrument ID: 16417
Date: 11/2011

Analyte	Wavelength (nm)	Interelement Correction Factor for: AL	CA	FE	MG	CO
Cadmium	226.50	0.0000000	0.0000000	0.0000800	0.0000000	-0.0000400
Lead	220.35	0.0001920	0.0000000	0.0000530	0.0000000	0.0000350
Selenium	196.09	-0.0000040	0.0000000	0.0000000	0.0000000	-0.0000160
Silver	328.06	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000

Comments:

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QUALITY ASSURANCE SUMMARY
FORM 11
ICP INTERELEMENT CORRECTION FACTORS (BIANNUALLY)
SDG No.: DHR08

Instrument ID: 16417
Date: 11/2011

Analyte	Wavelength (nm)	Interelement Correction Factor for: CR	CU	MO	NI	SI
Cadmium	226.50	0.0000160	0.0000000	0.0000000	0.0000000	0.0000000
Lead	220.35	-0.0000520	0.0003180	-0.0016700	0.0002220	0.0000280
Selenium	196.09	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Silver	328.06	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000

Comments:

DHR08 8261

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QUALITY ASSURANCE SUMMARY
FORM 11
ICP INTERELEMENT CORRECTION FACTORS (BIANNUALLY)
SDG No.: DHR08

Instrument ID: 16417
Date: 11/2011

Analyte	Wavelength (nm)	Interelement Correction Factor for: ZR	--	--	--	--
Cadmium	226.50	0.0000000				
Lead	220.35	0.0000000				
Selenium	196.09	0.0000000				
Silver	328.06	0.0080000				

Comments:

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QUALITY ASSURANCE SUMMARY
FORM 12
LINEAR RANGES
SDG No.: DHR08

Method: P
Instrument ID: 16417
Date: 10/2011

Analyte	Wavelength (nm)	Integration Time (Sec.)	Concentration (ug/L)
Barium	455.4	10.00	5000.0
Cadmium	226.5	10.00	20000.0
Chromium	267.72	10.00	20000.0
Lead	220.35	10.00	10000.0
Selenium	196.09	10.00	10000.0
Silver	328.06	10.00	10000.0

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 13
PREPARATION LOG
SDG No.: DHR08

Method: P
Batch ID: P34905B

Lab Sample ID	Date	Initial Volume(ml)	Final Volume(ml)
6499033	12/16/2011	50.00	50
P34905BB	12/16/2011	50.00	50
P34905BQ	12/16/2011	1.00	1

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

LEGEND:
BKG = Background
DUP = Duplicate
MS = Matrix Spike
MSD = Matrix Spike Duplicate
B = Blank
Q = Laboratory Control Sample
Y = Laboratory Control Sample Duplicate

DHR08 0264

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QUALITY ASSURANCE SUMMARY
FORM 13
PREPARATION LOG
SDG No.: DHR08

Method: MS
Batch ID: P34950A

Lab Sample ID	Date	Initial Volume(ml)	Final Volume(ml)
6499033	12/16/2011	50.00	50
P34950AB	12/16/2011	50.00	50
P34950AQ	12/16/2011	1.00	1

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

LEGEND:
BKG = Background
DUP = Duplicate
MS = Matrix Spike
MSD = Matrix Spike Duplicate
B = Blank
Q = Laboratory Control Sample
Y = Laboratory Control Sample Duplicate

DHR08 0365

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QUALITY ASSURANCE SUMMARY
FORM 13
PREPARATION LOG
SDG No.: DHR08

Method: CV
Batch ID: P34913C

Lab Sample ID	Date	Initial Volume(ml)	Final Volume(ml)
6499033	12/16/2011	40.00	40
P34913CB	12/16/2011	40.00	40
P34913CQ	12/16/2011	1.00	1

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

LEGEND:
BKG = Background
DUP = Duplicate
MS = Matrix Spike
MSD = Matrix Spike Duplicate
B = Blank
Q = Laboratory Control Sample
Y = Laboratory Control Sample Duplicate

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QUALITY ASSURANCE SUMMARY
FORM 14
ANALYSIS RUN LOG
SDG No.: DHR08

Method: P
Instrument ID: 16417
Run Name: 1135102T72

Run Start Date: 12/17/2011
Run End Date: 12/17/2011

Lab Sample ID	D/F	Time	Analytes							
			AS	BA	CD	CR	PB	HG	SE	AG
S0	1.00	18:59		X	X	X	X		X	X
S	1.00	19:03								
S	1.00	19:07		X	X		X		X	X
S	1.00	19:11				X				
ICV	1.00	19:15		X	X	X	X		X	X
ICB	1.00	19:18		X	X	X	X		X	X
LLC	1.00	19:22		X	X	X	X		X	X
ICSA	1.00	19:26		X	X	X	X		X	X
ICSAB	1.00	19:30		X	X	X	X		X	X
CCV	1.00	19:33		X	X	X	X		X	X
CCB	1.00	19:37		X	X	X	X		X	X
P34905BB	1.00	19:41		X	X	X	X		X	X
P34905BQ	1.00	19:45		X	X	X	X		X	X
ZZZZZZ	1.00	19:49								
ZZZZZZ	1.00	19:53								
ZZZZZZ	1.00	19:57								
ZZZZZZ	1.00	20:01								
ZZZZZZ	1.00	20:05								
ZZZZZZ	5.00	20:09								
6499033	1.00	20:13		X	X	X	X		X	X
ZZZZZZ	1.00	20:16								
CCV	1.00	20:20		X	X	X	X		X	X
CCB	1.00	20:24		X	X	X	X		X	X
LLC	1.00	20:28		X	X	X	X		X	X
ICSA	1.00	20:32		X	X	X	X		X	X
ICSAB	1.00	20:35		X	X	X	X		X	X
CCV	1.00	20:39		X	X	X	X		X	X
CCB	1.00	20:43		X	X	X	X		X	X

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

LEGEND:
BKG = Background
DUP = Duplicate
MS = Matrix Spike
MSD = Matrix Spike Duplicate
A = Post Digest Spike
L = Serial Dilution
B = Blank
Q = Laboratory Control Sample
Y = Laboratory Control Sample Duplicate

DHR08 0267

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QUALITY ASSURANCE SUMMARY
FORM 14
ANALYSIS RUN LOG
SDG No.: DHR08

Method: MS
Instrument ID: 11332
Run Name: 1135304E03

Run Start Date: 12/19/2011
Run End Date: 12/19/2011

Lab Sample ID	D/F	Time	Analytes AS	BA	CD	CR	PB	HG	SE	AG
S0	1.00	10:24	X							
S	1.00	10:27	X							
CCS	1.00	10:30	X							
CCS	1.00	10:32	X							
ICV	1.00	10:35	X							
ICB	1.00	10:38	X							
LLC	1.00	10:41	X							
ICSA	1.00	10:43	X							
ICSAB	1.00	10:46	X							
CCV	1.00	10:49	X							
CCB	1.00	10:51	X							
P34950AB	1.00	10:54	X							
P34950AQ	1.00	10:57	X							
ZZZZZZ	1.00	10:59								
ZZZZZZ	1.00	11:02								
ZZZZZZ	1.00	11:05								
ZZZZZZ	1.00	11:07								
ZZZZZZ	1.00	11:10								
ZZZZZZ	5.00	11:14								
ZZZZZZ	50.00	11:16								
ZZZZZZ	1.00	11:19								
CCV	1.00	11:22	X							
CCB	1.00	11:25	X							
ZZZZZZ	1.00	11:27								
ZZZZZZ	1.00	11:30								
ZZZZZZ	1.00	11:33								
ZZZZZZ	1.00	11:35								
ZZZZZZ	1.00	11:38								
ZZZZZZ	1.00	11:41								
ZZZZZZ	1.00	11:43								
ZZZZZZ	1.00	11:46								
ZZZZZZ	1.00	11:49								
ZZZZZZ	20.00	11:51								
CCV	1.00	11:54	X							
CCB	1.00	11:57	X							
ZZZZZZ	1.00	11:59								
ZZZZZZ	1.00	12:02								
ZZZZZZ	1.00	12:05								

METHODS:	LEGEND:
P = ICP Atomic Emission Spectrometer	BKG = Background
MS = ICP Mass Spectrometry	DUP = Duplicate
CV = Cold Vapor	MS = Matrix Spike
AF = Cold Vapor Atomic Fluorescence	MSD = Matrix Spike Duplicate
	A = Post Digest Spike
	L = Serial Dilution
	B = Blank
	Q = Laboratory Control Sample
	Y = Laboratory Control Sample Duplicate

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QUALITY ASSURANCE SUMMARY
FORM 14
ANALYSIS RUN LOG
SDG No.: DHR08

Method: MS
Instrument ID: 11332
Run Name: 1135304E03

Run Start Date: 12/19/2011
Run End Date: 12/19/2011

Lab Sample ID	D/F	Time	Analytes																													
			AS	BA	CD	CR	PB	HG	SE	AG																						
ZZZZZZ	1.00	12:07																														
ZZZZZZ	1.00	12:10																														
ZZZZZZ	1.00	12:13																														
6499033	1.00	12:16	X																													
LLC	1.00	12:18	X																													
ICSA	1.00	12:21	X																													
ICSAB	1.00	12:24	X																													
CCV	1.00	12:26	X																													
CCB	1.00	12:29	X																													

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

LEGEND:
BKG = Background
DUP = Duplicate
MS = Matrix Spike
MSD = Matrix Spike Duplicate
A = Post Digest Spike
L = Serial Dilution
B = Blank
Q = Laboratory Control Sample
Y = Laboratory Control Sample Duplicate

DHR08 #269

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QUALITY ASSURANCE SUMMARY
FORM 14
ANALYSIS RUN LOG
SDG No.: DHR08

Method: CV
Instrument ID: 17384
Run Name: 1135301M07

Run Start Date: 12/19/2011
Run End Date: 12/19/2011

Lab Sample ID	D/F	Time	Analytes AS	BA	CD	CR	PB	HG	SE	AG
S0	1.00	07:33						X		
S0.2	1.00	07:35						X		
S0.5	1.00	07:36						X		
S1.0	1.00	07:38						X		
S2.5	1.00	07:39						X		
S5.0	1.00	07:41						X		
ICV	1.00	07:42						X		
ICB	1.00	07:44						X		
CRA	1.00	07:46						X		
CCV	1.00	07:47						X		
CCB	1.00	07:49						X		
P34913CB	1.00	07:50						X		
P34913CQ	1.00	07:52						X		
ZZZZZZ	1.00	07:53								
ZZZZZZ	1.00	07:55								
ZZZZZZ	1.00	07:56								
ZZZZZZ	1.00	07:58								
ZZZZZZ	1.00	07:59								
ZZZZZZ	1.00	08:01								
ZZZZZZ	1.00	08:02								
ZZZZZZ	1.00	08:04								
CCV	1.00	08:05						X		
CCB	1.00	08:07						X		
ZZZZZZ	1.00	08:08								
ZZZZZZ	10.00	08:10								
ZZZZZZ	1.00	08:11								
ZZZZZZ	1.00	08:13								
ZZZZZZ	1.00	08:14								
ZZZZZZ	1.00	08:16								
ZZZZZZ	1.00	08:17								
ZZZZZZ	1.00	08:19								
ZZZZZZ	1.00	08:20								
ZZZZZZ	1.00	08:22								
CCV	1.00	08:24						X		
CCB	1.00	08:25						X		
ZZZZZZ	1.00	08:27								
ZZZZZZ	1.00	08:28								
6499033	1.00	08:30						X		

METHODS:
- P = ICP Atomic Emission Spectrometer
- MS = ICP Mass Spectrometry
- CV = Cold Vapor
- AF = Cold Vapor Atomic Fluorescence

LEGEND:
- BKG = Background
- DUP = Duplicate
- MS = Matrix Spike
- MSD = Matrix Spike Duplicate
- A = Post Digest Spike
- L = Serial Dilution
- B = Blank
- Q = Laboratory Control Sample
- Y = Laboratory Control Sample Duplicate

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QUALITY ASSURANCE SUMMARY
FORM 14
ANALYSIS RUN LOG
SDG No.: DHR08

Method: CV
Instrument ID: 17384
Run Name: 1135301M07

Run Start Date: 12/19/2011
Run End Date: 12/19/2011

Lab Sample ID	D/F	Time	Analytes																																
			AS	BA	CD	CR	PB	HG	SE	AG																										
ZZZZZZ	1.00	08:31																																	
ZZZZZZ	1.00	08:33																																	
ZZZZZZ	1.00	08:34																																	
ZZZZZZ	1.00	08:36																																	
ZZZZZZ	1.00	08:37																																	
ZZZZZZ	1.00	08:39																																	
ZZZZZZ	1.00	08:40																																	
CCV	1.00	08:42						X																											
CCB	1.00	08:43						X																											

METHODS:
- P = ICP Atomic Emission Spectrometer
- MS = ICP Mass Spectrometry
- CV = Cold Vapor
- AF = Cold Vapor Atomic Fluorescence

LEGEND:
- BKG = Background
- DUP = Duplicate
- MS = Matrix Spike
- MSD = Matrix Spike Duplicate
- A = Post Digest Spike
- L = Serial Dilution
- B = Blank
- Q = Laboratory Control Sample
- Y = Laboratory Control Sample Duplicate

DHR08 0271

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QUALITY ASSURANCE SUMMARY
FORM 15
ICP-MS TUNE
SDG No.: DHR08
Matrix: WATER

Instrument ID: 11332
Date: 12/19/2011

Analyte	Mass	Avg. Measured Mass (amu)	Avg. Peak Width at 5% Peak Height (amu)	%RSD
Lithium	6.000	6.05	0.60	1.6
Magnesium	24.000	24.00	0.65	2.0
Rhodium	103.000	103.05	0.60	1.2
Indium	115.000	115.05	0.60	1.5
Cerium	140.000	140.05	0.60	0.6
Lead	208.000	208.00	0.65	1.6
Uranium	238.000	238.00	0.65	1.7

Comments:

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QUALITY ASSURANCE SUMMARY
FORM 16
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
SDG No.: DHR08

Instrument ID: 11332
Run Name: 1135304E03

Start Date: 12/19/2011
End Date: 12/19/2011

Lab Sample ID	Time	Internal Standards %RI For: Element IN-2-115	Q	Element	Q	Element	Q	Element	Q	Element	Q	Element	Q	Element	Q
S0	10:24	100													
S	10:27	97													
CCS	10:30	96													
CCS	10:32	95													
ICV	10:35	92													
ICB	10:38	93													
LLC	10:41	93													
ICSA	10:43	94													
ICSAB	10:46	97													
CCV	10:49	97													
CCB	10:51	98													
P34950AB	10:54	99													
P34950AQ	10:57	98													
ZZZZZZ	10:59														
ZZZZZZ	11:02														
ZZZZZZ	11:05														
ZZZZZZ	11:07														
ZZZZZZ	11:10														
ZZZZZZ	11:14														
ZZZZZZ	11:16														
ZZZZZZ	11:19														
CCV	11:22	87													
CCB	11:25	92													
ZZZZZZ	11:27														
ZZZZZZ	11:30														
ZZZZZZ	11:33														
ZZZZZZ	11:35														
ZZZZZZ	11:38														
ZZZZZZ	11:41														
ZZZZZZ	11:43														
ZZZZZZ	11:46														
ZZZZZZ	11:49														
ZZZZZZ	11:51														
CCV	11:54	90													
CCB	11:57	96													
ZZZZZZ	11:59														
ZZZZZZ	12:02														
ZZZZZZ	12:05														

LEGEND:
- BKG = Background
- DUP = Duplicate
- MS = Matrix Spike
- MSD = Matrix Spike Duplicate
- A = Post Digest Spike
- L = Serial Dilution
- B = Blank
- Q = Laboratory Control Sample
- Y = Laboratory Control Sample Duplicate

FLAG:
- R = Internal Standard Relative Intensity OOS

INTERNAL STANDARD ELEMENTS
- BE = Beryllium
- BI = Bismuth
- GE = Germanium
- HO = Holmium
- IN = Indium
- LI = Lithium
- SC = Scandium
- TB = Terbium
- Y = Yttrium

DHR08 0270

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QUALITY ASSURANCE SUMMARY
FORM 16
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
SDG No.: DHR08

Instrument ID: 11332
Run Name: 1135304E03

Start Date: 12/19/2011
End Date: 12/19/2011

Lab Sample ID	Time	Internal Standards %RI For: Element IN-2-115	Q	Element	Q	Element	Q	Element	Q	Element	Q	Element	Q	Element	Q
ZZZZZZ	12:07														
ZZZZZZ	12:10														
ZZZZZZ	12:13														
6499033	12:16	94													
LLC	12:18	95													
ICSA	12:21	92													
ICSAB	12:24	92													
CCV	12:26	95													
CCB	12:29	97													

LEGEND:
- BKG = Background
- DUP = Duplicate
- MS = Matrix Spike
- MSD = Matrix Spike Duplicate
- A = Post Digest Spike
- L = Serial Dilution
- B = Blank
- Q = Laboratory Control Sample
- Y = Laboratory Control Sample Duplicate

FLAG:
- R = Internal Standard Relative Intensity OOS

INTERNAL STANDARD ELEMENTS
- BE = Beryllium
- BI = Bismuth
- GE = Germanium
- HO = Holmium
- IN = Indium
- LI = Lithium
- SC = Scandium
- TB = Terbium
- Y = Yttrium

Metals in Solid Data

DHR68 8275

Case Narrative
Conformance/Non-Conformance

BRR68 8276

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CASE NARRATIVE FOR INORGANICS

Laboratory Name: Lancaster Laboratories

SDG Number: DHR08S

Date Received: 12/14/2011

Dilutions:
Refer to the analysis run logs for samples requiring dilutions.

Quality Assurance/Quality Control:
Method defined actions are taken for any failed matrix QC.
See QC Reference List for Associated Batch QC Samples.

Explanatory Notes:
The instrument detection limits (IDLs) are used for determining the U flags on the initial and continuing calibration blanks. The highest IDL is selected when multiple instruments are used for an analysis. The method detection limits (MDLs) are used for determining all other U flags.

Data Package Assembly:
This sample delivery group was separated by matrix into two data packages, DHR08S and DHR08W, due to limitations of the data package generating software.

Narrative Reviewed and Approved 01-19-12 (Date) by Betty L. Umble
Specialist

Sample Data

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: DHR08
Matrix: SOIL Level (low/med): LOW

Lab Sample ID: 6499034
Concentration Units: MG/KG

% Solids: 82.2
Date Received: 12/14/2011

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	13.4			MS
7440-39-3	Barium	118			P
7440-43-9	Cadmium	0.96			P
7440-47-3	Chromium	23.5			P
7439-92-1	Lead	15.5			P
7439-97-6	Mercury	0.013	B		CV
7782-49-2	Selenium	0.81	U		P
7440-22-4	Silver	0.099	U		P

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence
NR = Not Required

CONCENTRATION QUALIFIERS:
U = Below MDL,
B = Below LOQ

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: DHR08
Matrix: SOIL Level (low/med): LOW

Lab Sample ID: 6499035BKG
Concentration Units: MG/KG

% Solids: 80.8
Date Received: 12/14/2011

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	15.3			MS
7440-39-3	Barium	76.1			P
7440-43-9	Cadmium	1.0			P
7440-47-3	Chromium	21.9			P
7439-92-1	Lead	14.8			P
7439-97-6	Mercury	0.022	B		CV
7782-49-2	Selenium	0.81	U		P
7440-22-4	Silver	0.099	U		P

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence
NR = Not Required

CONCENTRATION QUALIFIERS:
U = Below MDL,
B = Below LOQ

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: DHR08
Matrix: SOIL Level (low/med): LOW

Lab Sample ID: 6499036MS
Concentration Units: MG/KG

% Solids: 80.8
Date Received: 12/14/2011

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	17.8			MS
7440-39-3	Barium	342			P
7440-43-9	Cadmium	6.8			P
7440-47-3	Chromium	53.0			P
7439-92-1	Lead	33.9			P
7439-97-6	Mercury	0.22			CV
7782-49-2	Selenium	17.9			P
7440-22-4	Silver	5.8			P

Comments:

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer MS = ICP Mass Spectrometry CV = Cold Vapor AF = Cold Vapor Atomic Fluorescence NR = Not Required	U = Below MDL, B = Below LOQ

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: DHR08
Matrix: SOIL Level (low/med): LOW

Lab Sample ID: 6499037MSD
Concentration Units: MG/KG

% Solids: 80.8
Date Received: 12/14/2011

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	17.1			MS
7440-39-3	Barium	344			P
7440-43-9	Cadmium	6.7			P
7440-47-3	Chromium	52.5			P
7439-92-1	Lead	32.3			P
7439-97-6	Mercury	0.21			CV
7782-49-2	Selenium	18.4			P
7440-22-4	Silver	5.8			P

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence
NR = Not Required

CONCENTRATION QUALIFIERS:
U = Below MDL,
B = Below LOQ

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: DHR08
Matrix: SOIL Level (low/med): LOW

Lab Sample ID: 6499038DUP % Solids: 80.8
Concentration Units: MG/KG Date Received: 12/14/2011

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	14.3			MS
7440-39-3	Barium	79.6			P
7440-43-9	Cadmium	1.0			P
7440-47-3	Chromium	21.3			P
7439-92-1	Lead	14.5			P
7439-97-6	Mercury	0.026	B		CV
7782-49-2	Selenium	0.83	U		P
7440-22-4	Silver	0.10	U		P

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence
NR = Not Required

CONCENTRATION QUALIFIERS:
U = Below MDL,
B = Below LOQ

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: DHR08
Matrix: SOIL Level (low/med): LOW

Lab Sample ID: 6499039
Concentration Units: MG/KG

% Solids: 81.0
Date Received: 12/14/2011

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	12.7			MS
7440-39-3	Barium	54.2			P
7440-43-9	Cadmium	0.76			P
7440-47-3	Chromium	12.7			P
7439-92-1	Lead	11.1			P
7439-97-6	Mercury	0.015	B		CV
7782-49-2	Selenium	0.82	U		P
7440-22-4	Silver	0.10	U		P

Comments:

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer MS = ICP Mass Spectrometry CV = Cold Vapor AF = Cold Vapor Atomic Fluorescence NR = Not Required	U = Below MDL, B = Below LOQ

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: DHR08
Matrix: SOIL Level (low/med): LOW

Lab Sample ID: 6499040
Concentration Units: MG/KG

% Solids: 82.6
Date Received: 12/14/2011

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	12.0			MS
7440-39-3	Barium	168			P
7440-43-9	Cadmium	0.89			P
7440-47-3	Chromium	24.5			P
7439-92-1	Lead	16.3			P
7439-97-6	Mercury	0.017	B		CV
7782-49-2	Selenium	0.80	U		P
7440-22-4	Silver	0.098	U		P

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence
NR = Not Required

CONCENTRATION QUALIFIERS:
U = Below MDL,
B = Below LOQ

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: DHR08
Matrix: SOIL Level (low/med): LOW

Lab Sample ID: 6499041
Concentration Units: MG/KG

% Solids: 81.9
Date Received: 12/14/2011

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	14.5			MS
7440-39-3	Barium	115			P
7440-43-9	Cadmium	0.96			P
7440-47-3	Chromium	22.0			P
7439-92-1	Lead	13.9			P
7439-97-6	Mercury	0.031	B		CV
7782-49-2	Selenium	0.81	U		P
7440-22-4	Silver	0.098	U		P

Comments:

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer MS = ICP Mass Spectrometry CV = Cold Vapor AF = Cold Vapor Atomic Fluorescence NR = Not Required	U = Below MDL, B = Below LOQ

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: DHR08
Matrix: SOIL Level (low/med): LOW

Lab Sample ID: 6499042 % Solids: 80.0
Concentration Units: MG/KG Date Received: 12/14/2011

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	12.6			MS
7440-39-3	Barium	65.3			P
7440-43-9	Cadmium	0.79			P
7440-47-3	Chromium	13.9			P
7439-92-1	Lead	11.9			P
7439-97-6	Mercury	0.016	B		CV
7782-49-2	Selenium	0.83	U		P
7440-22-4	Silver	0.10	U		P

Comments:

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U = Below MDL,
MS = ICP Mass Spectrometry	B = Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	
NR = Not Required	

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: DHR08
Matrix: SOIL Level (low/med): LOW

Lab Sample ID: 6499043
Concentration Units: MG/KG

% Solids: 81.6
Date Received: 12/14/2011

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	13.9			MS
7440-39-3	Barium	112			P
7440-43-9	Cadmium	0.93			P
7440-47-3	Chromium	24.4			P
7439-92-1	Lead	15.4			P
7439-97-6	Mercury	0.013	B		CV
7782-49-2	Selenium	0.82	U		P
7440-22-4	Silver	0.10	U		P

Comments:

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer MS = ICP Mass Spectrometry CV = Cold Vapor AF = Cold Vapor Atomic Fluorescence NR = Not Required	U = Below MDL, B = Below LOQ

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: DHR08
Matrix: SOIL Level (low/med): LOW

Lab Sample ID: 6499044
Concentration Units: MG/KG

% Solids: 83.1
Date Received: 12/14/2011

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	11.7			MS
7440-39-3	Barium	187			P
7440-43-9	Cadmium	0.81			P
7440-47-3	Chromium	20.5			P
7439-92-1	Lead	13.8			P
7439-97-6	Mercury	0.016	B		CV
7782-49-2	Selenium	1.4	B		P
7440-22-4	Silver	0.096	U		P

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence
NR = Not Required

CONCENTRATION QUALIFIERS:
U = Below MDL,
B = Below LOQ

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: DHR08
Matrix: SOIL Level (low/med): LOW

Lab Sample ID: 6499045 % Solids: 80.8
Concentration Units: MG/KG Date Received: 12/14/2011

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	14.3			MS
7440-39-3	Barium	90.5			P
7440-43-9	Cadmium	0.95			P
7440-47-3	Chromium	23.9			P
7439-92-1	Lead	12.8			P
7439-97-6	Mercury	0.029	B		CV
7782-49-2	Selenium	0.82	U		P
7440-22-4	Silver	0.10	U		P

Comments:

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U = Below MDL,
MS = ICP Mass Spectrometry	B = Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	
NR = Not Required	

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: DHR08
Matrix: SOIL Level (low/med): LOW

Lab Sample ID: 6499046
Concentration Units: MG/KG

% Solids: 80.1
Date Received: 12/14/2011

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	12.7			MS
7440-39-3	Barium	77.3			P
7440-43-9	Cadmium	0.81			P
7440-47-3	Chromium	15.5			P
7439-92-1	Lead	10.8			P
7439-97-6	Mercury	0.021	B		CV
7782-49-2	Selenium	0.84	U		P
7440-22-4	Silver	0.10	U		P

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence
NR = Not Required

CONCENTRATION QUALIFIERS:
U = Below MDL,
B = Below LOQ

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: DHR08
Matrix: SOIL Level (low/med): LOW

Lab Sample ID: 6499047
Concentration Units: MG/KG

% Solids: 81.4
Date Received: 12/14/2011

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	13.8			MS
7440-39-3	Barium	147			P
7440-43-9	Cadmium	0.97			P
7440-47-3	Chromium	24.0			P
7439-92-1	Lead	16.0			P
7439-97-6	Mercury	0.018	B		CV
7782-49-2	Selenium	0.81	U		P
7440-22-4	Silver	0.099	U		P

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence
NR = Not Required

CONCENTRATION QUALIFIERS:
U = Below MDL,
B = Below LOQ

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: DHR08
Matrix: SOIL Level (low/med): LOW

Lab Sample ID: 6499048
Concentration Units: MG/KG

% Solids: 81.2
Date Received: 12/14/2011

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	14.9			MS
7440-39-3	Barium	113			P
7440-43-9	Cadmium	1.0			P
7440-47-3	Chromium	24.3			P
7439-92-1	Lead	13.4			P
7439-97-6	Mercury	0.025	B		CV
7782-49-2	Selenium	0.81	U		P
7440-22-4	Silver	0.098	U		P

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence
NR = Not Required

CONCENTRATION QUALIFIERS:
U = Below MDL,
B = Below LOQ

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: DHR08
Matrix: SOIL Level (low/med): LOW

Lab Sample ID: 6499049
Concentration Units: MG/KG

% Solids: 77.5
Date Received: 12/14/2011

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	13.0			MS
7440-39-3	Barium	67.8			P
7440-43-9	Cadmium	0.84			P
7440-47-3	Chromium	14.0			P
7439-92-1	Lead	11.6			P
7439-97-6	Mercury	0.012	B		CV
7782-49-2	Selenium	0.87	U		P
7440-22-4	Silver	0.11	U		P

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence
NR = Not Required

CONCENTRATION QUALIFIERS:
U = Below MDL,
B = Below LOQ

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: DHR08
Matrix: SOIL Level (low/med): LOW

Lab Sample ID: 6499050
Concentration Units: MG/KG

% Solids: 83.6
Date Received: 12/14/2011

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	11.8			MS
7440-39-3	Barium	154			P
7440-43-9	Cadmium	0.83			P
7440-47-3	Chromium	22.3			P
7439-92-1	Lead	15.3			P
7439-97-6	Mercury	0.0095	B		CV
7782-49-2	Selenium	0.81	U		P
7440-22-4	Silver	0.099	U		P

Comments:

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U = Below MDL,
MS = ICP Mass Spectrometry	B = Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	
NR = Not Required	

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: DHR08
Matrix: SOIL Level (low/med): LOW

Lab Sample ID: 6499051 % Solids: 81.0
Concentration Units: MG/KG Date Received: 12/14/2011

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	14.3			MS
7440-39-3	Barium	91.0			P
7440-43-9	Cadmium	0.91			P
7440-47-3	Chromium	19.3			P
7439-92-1	Lead	14.5			P
7439-97-6	Mercury	0.022	B		CV
7782-49-2	Selenium	0.82	U		P
7440-22-4	Silver	0.10	U		P

Comments:

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U = Below MDL,
MS = ICP Mass Spectrometry	B = Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	
NR = Not Required	

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: DHR08
Matrix: SOIL Level (low/med): LOW

Lab Sample ID: 6499052 % Solids: 79.4
Concentration Units: MG/KG Date Received: 12/14/2011

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	14.6			MS
7440-39-3	Barium	99.6			P
7440-43-9	Cadmium	0.89			P
7440-47-3	Chromium	16.9			P
7439-92-1	Lead	13.3			P
7439-97-6	Mercury	0.022	B		CV
7782-49-2	Selenium	0.86	U		P
7440-22-4	Silver	0.10	U		P

Comments:

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U = Below MDL,
MS = ICP Mass Spectrometry	B = Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	
NR = Not Required	

Quality Control and Calibration Summary Forms

DHR08 0298

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QUALITY CONTROL REFERENCE LIST

SDG No.: DHR08
Matrix: SOIL

Analyte	Batch ID	Lab Sample ID
Barium	P34908A	6499034
Cadmium		6499035BKG
Chromium		6499036MS
Lead		6499037MSD
Selenium		6499038DUP
Silver		6499039
		6499040
		6499041
		6499042
		6499043
		6499044
		6499045
		6499046
		6499047
		6499048
		6499049
		6499050
		6499051
		6499052
		P34908AB
		P34908AQ

LEGEND:

BKG = Background	B = Blank
DUP = Duplicate	Q = Laboratory Control Sample
MS = Matrix Spike	Y = Laboratory Control Sample Duplicate
MSD = Matrix Spike Duplicate	

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QUALITY CONTROL REFERENCE LIST

SDG No.: DHR08
Matrix: SOIL

Analyte	Batch ID	Lab Sample ID
Arsenic	P34926A	6499034
		6499035BKG
		6499036MS
		6499037MSD
		6499038DUP
		6499039
		6499040
		6499041
		6499042
		6499043
		6499044
		6499045
		6499046
		6499047
		6499048
		6499049
		6499050
		6499051
		6499052
		P34926AB
		P34926AQ

LEGEND:

BKG = Background	B = Blank
DUP = Duplicate	Q = Laboratory Control Sample
MS = Matrix Spike	Y = Laboratory Control Sample Duplicate
MSD = Matrix Spike Duplicate	

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QUALITY CONTROL REFERENCE LIST

SDG No.: DHR08
Matrix: SOIL

Analyte	Batch ID	Lab Sample ID
Mercury	P34911A	6499034
		6499035BKG
		6499036MS
		6499037MSD
		6499038DUP
		6499039
		6499040
		6499041
		6499042
		6499043
		6499044
		6499045
		6499046
		6499047
		6499048
		6499049
		6499050
		6499051
		6499052
		P34911AB
		P34911AQ

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LEGEND:

BKG = Background	B = Blank
DUP = Duplicate	Q = Laboratory Control Sample
MS = Matrix Spike	Y = Laboratory Control Sample Duplicate
MSD = Matrix Spike Duplicate	

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: DHR08

Method: P
Run Name: 1135304T71
Calibration Date(s): 12/19/2011
Concentration Units: UG/L

Analyte	Mass	Initial Calibration			Continuing Calibration					
		True	Found	%R(1)	True	Found	%R(2)	True	Found	%R(2)
Barium		600.0	592.78	98.8	500.0	497.77	99.6	500.0	502.55	100.5
Cadmium		600.0	577.75	96.3	500.0	483.21	96.6	500.0	479.05	95.8
Chromium		600.0	579.19	96.5	500.0	483.65	96.7	500.0	485.79	97.2
Lead		600.0	570.58	95.1	500.0	478.62	95.7	500.0	473.76	94.8
Selenium		600.0	579.98	96.7	500.0	481.83	96.4	500.0	487.41	97.5
Silver		600.0	588.14	98.0	500.0	492.23	98.4	500.0	499.56	99.9

(1) Control Limits: 90 - 110
(2) Control Limits: 90 - 110

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: DHR08

Method: P
Run Name: 1135304T71
Calibration Date(s): 12/19/2011
Concentration Units: UG/L

Analyte	Mass	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(2)	True	Found	%R(2)
Barium					500.0	507.82	101.6	500.0	506.95	101.4
Cadmium					500.0	474.30	94.9	500.0	472.58	94.5
Chromium					500.0	488.16	97.6	500.0	486.38	97.3
Lead					500.0	471.51	94.3	500.0	470.50	94.1
Selenium					500.0	482.77	96.6	500.0	480.25	96.1
Silver					500.0	505.69	101.1	500.0	506.43	101.3

(1) Control Limits: 90 - 110
(2) Control Limits: 90 - 110

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: DHR08

Method: P
Run Name: 1135405T70
Calibration Date(s): 12/20/2011
Concentration Units: UG/L

Analyte	Mass	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(2)	True	Found	%R(2)
Barium										
Cadmium										
Chromium										
Lead										
Selenium		600.0	588.34	98.1	500.0	488.76	97.8	500.0	488.90	97.8
Silver										

(1) Control Limits: 90 - 110
(2) Control Limits: 90 - 110

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: DHR08

Method: P
Run Name: 1135405T70
Calibration Date(s): 12/20/2011
Concentration Units: UG/L

Analyte	Mass	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(2)	True	Found	%R(2)
Barium										
Cadmium										
Chromium										
Lead										
Selenium					500.0	480.16	96.0			
Silver										

(1) Control Limits: 90 - 110
(2) Control Limits: 90 - 110

DHR08 0065

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: DHR08

Method: MS
Run Name: 1135506E03
Calibration Date(s): 12/21/2011
Concentration Units: UG/L

		Initial Calibration			Continuing Calibration					
Analyte	Mass	True	Found	%R(1)	True	Found	%R(2)	True	Found	%R(2)
Arsenic	75	500.0	491.00	98.2	250.0	243.70	97.5	250.0	254.90	102.0

(1) Control Limits: 90 - 110
(2) Control Limits: 90 - 110

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: DHR08

Method: MS
Run Name: 1135506E03
Calibration Date(s): 12/21/2011
Concentration Units: UG/L

Analyte	Mass	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(2)	True	Found	%R(2)
Arsenic	75				250.0	247.70	99.1	250.0	240.10	96.0

(1) Control Limits: 90 - 110
(2) Control Limits: 90 - 110

DHR08 0287

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: DHR08

Method: CV
Run Name: 1135001M06
Calibration Date(s): 12/16/2011
Concentration Units: UG/L

Analyte	Mass	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(2)	True	Found	%R(2)
Mercury		2.5	2.39	95.6	1.0	0.98	98.0	1.0	1.00	100.0

(1) Control Limits: 90 - 110
(2) Control Limits: 80 - 120

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: DHR08

Method: CV
Run Name: 1135001M06
Calibration Date(s): 12/16/2011
Concentration Units: UG/L

Analyte	Mass	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(2)	True	Found	%R(2)
Mercury					1.0	1.00	100.0	1.0	1.00	100.0

(1) Control Limits: 90 - 110
(2) Control Limits: 80 - 120

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: DHR08

Method: CV
Run Name: 1135001M06
Calibration Date(s): 12/16/2011
Concentration Units: UG/L

Analyte	Mass	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(2)	True	Found	%R(2)
Mercury					1.0	1.00	100.0	1.0	0.99	99.0

(1) Control Limits: 90 - 110
(2) Control Limits: 80 - 120

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: DHR08

Method: CV
Run Name: 1135001M06
Calibration Date(s): 12/16/2011
Concentration Units: UG/L

Analyte	Mass	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(2)	True	Found	%R(2)
Mercury					1.0	0.99	99.0	1.0	0.99	99.0

(1) Control Limits: 90 - 110
(2) Control Limits: 80 - 120

DHR0803311

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2B
LOW LEVEL CHECK STANDARD
SDG No.: DHR08

Method: P
Run Name: 1135304T71
Calibration Date(s): 12/19/2011
Concentration Units: UG/L

Analyte	Mass	Initial True	Initial Found	Initial %R	Final Found	Final %R
Barium		5.0	4.90	98.0	5.18	103.6
Cadmium		5.0	4.68	93.6	4.61	92.2
Chromium		15.0	13.78	91.9	14.13	94.2
Lead		15.0	16.97	113.1	16.04	106.9
Selenium		20.0	26.29	131.5	25.15	125.8
Silver		5.0	5.05	101.0	4.72	94.4

Control limits: 50% - 150%

For 6010B - Control limits apply to values up to 10 times the true value of the low level check standard. If LLC is out of specification, high, results < RL are acceptable.
For 6010C - If Low Level Check (LLC) is out of specification, results > CCV are acceptable. If LLC is out of specification, high, results < RL are acceptable.

DHR08 0312

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2B
LOW LEVEL CHECK STANDARD
SDG No.: DHR08

Method: P
Run Name: 1135405T70
Calibration Date(s): 12/20/2011
Concentration Units: UG/L

Analyte	Mass	Initial True	Initial Found	Initial %R	Final Found	Final %R
Barium						
Cadmium						
Chromium						
Lead						
Selenium		20.0	16.98	84.9	18.43	92.2
Silver						

Control limits: 50% - 150%

For 6010B - Control limits apply to values up to 10 times the true value of the low level check standard. If LLC is out of specification, high, results < RL are acceptable.
For 6010C - If Low Level Check (LLC) is out of specification, results > CCV are acceptable. If LLC is out of specification, high, results < RL are acceptable.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2B
LOW LEVEL CHECK STANDARD
SDG No.: DHR08

Method: MS
Run Name: 1135506E03
Calibration Date(s): 12/21/2011
Concentration Units: UG/L

Analyte	Mass	Initial True	Initial Found	Initial %R	Final Found	Final %R
Arsenic	75	2.0	2.03	101.5	2.03	101.5

Control limits: 50% - 150%

For 6010B - Control limits apply to values up to 10 times the true value of the low level check standard. If LLC is out of specification, high, results < RL are acceptable.
For 6010C - If Low Level Check (LLC) is out of specification, results > CCV are acceptable. If LLC is out of specification, high, results < RL are acceptable.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2B
LOW LEVEL CHECK STANDARD
SDG No.: DHR08

Method: CV
Run Name: 1135001M06
Calibration Date(s): 12/16/2011
Concentration Units: UG/L

Analyte	Mass	Initial True	Initial Found	Initial %R	Final Found	Final %R
Mercury		0.2	0.17	85.0		

Control limits: 50% - 150%

For 6010B - Control limits apply to values up to 10 times the true value of the low level check standard. If LLC is out of specification, high, results < RL are acceptable.
For 6010C - If Low Level Check (LLC) is out of specification, results > CCV are acceptable. If LLC is out of specification, high, results < RL are acceptable.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: DHR08

Method: P
Run Name: 1135304T71
Calibration Date(s): 12/19/2011
Preparation Blank Matrix: SOIL

Analyte	Mass	Initial Calibration Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Mass	Preparation Blank (MG/KG)	C	Lab Sample ID
Barium		0.33	U	0.33	U	0.33	U	0.33	U		0.018	U	P34908AB
Cadmium		0.33	U	0.33	U	0.33	U	0.33	U		0.020	U	P34908AB
Chromium		0.64	U	-0.82	B	0.64	U	0.64	U		0.140	U	P34908AB
Lead		1.8	U	4.0	B	3.3	B	2.5	B		0.365	B	P34908AB
Selenium		5.2	B	6.1	B	9.8	B	8.5	B		0.680	U	P34908AB
Silver		0.46	B	0.40	U	0.40	U	0.40	U		0.083	U	P34908AB

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

CONCENTRATION QUALIFIERS:
U= Below IDL/MDL
B= Below LOQ

DHR08 0016

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QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: DHR08

Method: P
Run Name: 1135304T71
Calibration Date(s): 12/19/2011

Analyte	Mass	Initial Calibration Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank (MG/KG) Mass		C	Lab Sample ID
Barium				0.33	U								
Cadmium				0.33	U								
Chromium				0.64	U								
Lead				1.8	U								
Selenium				7.5	B								
Silver				0.40	U								

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U= Below IDL/MDL
MS = ICP Mass Spectrometry	B= Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	

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QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: DHR08

Method: P
Run Name: 1135405T70
Calibration Date(s): 12/20/2011

Analyte	Mass	Initial Calibration Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank (MG/KG) Mass		C	Lab Sample ID
Barium													
Cadmium													
Chromium													
Lead													
Selenium		3.0	U	3.0	U	3.0	U	3.0	U				
Silver													

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U= Below IDL/MDL
MS = ICP Mass Spectrometry	B= Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	

DHR08 0318

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QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: DHR08

Method: MS
Run Name: 1135506E03
Calibration Date(s): 12/21/2011
Preparation Blank Matrix: SOIL

		Initial Calibration Blank (ug/L)		Continuing Calibration Blank (ug/L)						Preparation Blank (MG/KG)			
Analyte	Mass		C	1	C	2	C	3	C	Mass		C	Lab Sample ID
Arsenic	75	0.40	U	0.40	U	0.40	U	0.40	U	75	0.080	U	P34926AB

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U= Below IDL/MDL
MS = ICP Mass Spectrometry	B= Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	

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QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: DHR08

Method: MS
Run Name: 1135506E03
Calibration Date(s): 12/21/2011

Analyte	Mass	Initial Calibration Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank (MG/KG) Mass		C	Lab Sample ID
Arsenic	75			0.40	U								

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U= Below IDL/MDL
MS = ICP Mass Spectrometry	B= Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	

DHR08 0328

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QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: DHR08

Method: CV
Run Name: 1135001M06
Calibration Date(s): 12/16/2011
Preparation Blank Matrix: SOIL

		Initial Calibration Blank (ug/L)		Continuing Calibration Blank (ug/L)						Preparation Blank (MG/KG)			
Analyte	Mass		C	1	C	2	C	3	C	Mass		C	Lab Sample ID
Mercury		0.019	U	-0.054	B	-0.044	B	-0.041	B		-0.009	B	P34911AB

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U= Below IDL/MDL
MS = ICP Mass Spectrometry	B= Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	

DHR08 8321

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QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: DHR08

Method: CV
Run Name: 1135001M06
Calibration Date(s): 12/16/2011

Analyte	Mass	Initial Calibration Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank (MG/KG) Mass		C	Lab Sample ID
Mercury				-0.028	B	-0.023	B	-0.032	B				

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

CONCENTRATION QUALIFIERS:
U= Below IDL/MDL
B= Below LOQ

DHR08 0322

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QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: DHR08

Method: CV
Run Name: 1135001M06
Calibration Date(s): 12/16/2011

		Initial Calibration Blank (ug/L)		Continuing Calibration Blank (ug/L)						Preparation Blank (MG/KG)			
Analyte	Mass		C	1	C	2	C	3	C	Mass		C	Lab Sample ID
Mercury				-0.024	B	-0.026	B						

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

CONCENTRATION QUALIFIERS:
U= Below IDL/MDL
B= Below LOQ

DHR08 6323

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QUALITY ASSURANCE SUMMARY
FORM 4A
ICP-AES INTERFERENCE CHECK SAMPLE
SDG No.: DHR08

Instrument ID: 16315
Run Name: 1135304T71
Concentration Units: ug/L

Analyte	True		Initial Found				Final Found			
	Sol. A	Sol. AB	Sol. A	%R	Sol. AB	%R	Sol. A	%R	Sol. AB	%R
Aluminum	500000	500000	509091	101.8	508831.7	101.8	523112	104.6	516593.3	103.3
Barium	0	500	0		516.9	103.4	0		528.5	105.7
Cadmium	0	1000	6		938.6	93.9	5		920.6	92.1
Calcium	500000	500000	503775	100.8	505729.9	101.1	514486	102.9	507381.6	101.5
Chromium	0	500	2		475.0	95.0	3		479.9	96.0
Iron	200000	200000	203418	101.7	203647.9	101.8	207818	103.9	204143.6	102.1
Lead	0	50	0		47.0	94.0	-4		46.1	92.2
Magnesium	500000	500000	557290	111.5	557865.5	111.6	575647	115.1	566081.7	113.2
Selenium	0	50	5		47.1	94.2	3		46.1	92.2
Silver	0	200	0		211.5	105.8	-1		217.5	108.8

Control Limits: All Metals 80%-120%

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QUALITY ASSURANCE SUMMARY
FORM 4A
ICP-AES INTERFERENCE CHECK SAMPLE
SDG No.: DHR08

Instrument ID: 11016
Run Name: 1135405T70
Concentration Units: ug/L

Analyte	True		Initial Found				Final Found			
	Sol. A	Sol. AB	Sol. A	%R	Sol. AB	%R	Sol. A	%R	Sol. AB	%R
Aluminum	500000	500000	502678	100.5	506714.3	101.3	514675	102.9	512638.7	102.5
Barium										
Cadmium										
Calcium	500000	500000	497106	99.4	497555.9	99.5	500417	100.1	498968.0	99.8
Chromium										
Iron	200000	200000	195852	97.9	200464.2	100.2	210306	105.2	207901.9	104.0
Lead										
Magnesium	500000	500000	501575	100.3	508651.2	101.7	513906	102.8	512046.4	102.4
Selenium	0	50	3		50.1	100.2	-2		49.3	98.6
Silver										

Control Limits: All Metals 80%-120%

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QUALITY ASSURANCE SUMMARY
FORM 4B
ICP-MS INTERFERENCE CHECK SAMPLE
SDG No.: DHR08

Instrument ID: 11332
Run Name: 1135506E03
Concentration Units: ug/L

Analyte	Mass	True		Found			
		Sol. A	Sol. AB	Sol. A	%R	Sol. AB	%R
Aluminum	27	10000	10000	9581	95.8	9436.0	94.4
Arsenic	75	0	20	0		19.9	99.5
Calcium	44	10000	10000	9250	92.5	9322.0	93.2
Carbon	13	20000	20000	NA		NA	
Chloride	37	100000	100000	NA		NA	
Iron	57	10000	10000	9650	96.5	9624.0	96.2
Magnesium	24	10000	10000	9409	94.1	9363.0	93.6
Molybdenum	98	200	200	195	97.5	196.5	98.3
Phosphorus	31	10000	10000	NA		NA	
Potassium	39	10000	10000	9656	96.6	9497.0	95.0
Sodium	23	10000	10000	9338	93.4	9360.0	93.6
Sulfur	34	10000	10000	NA		NA	
Titanium	47	200	200	199	99.5	202.9	101.5

Control Limits: All Metals 80%-120%

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QUALITY ASSURANCE SUMMARY
FORM 4B
ICP-MS INTERFERENCE CHECK SAMPLE
SDG No.: DHR08

Instrument ID: 11332
Run Name: 1135506E03
Concentration Units: ug/L

Analyte	Mass	True		Found			
		Sol. A	Sol. AB	Sol. A	%R	Sol. AB	%R
Aluminum	27	10000	10000	9962	99.6	9873.0	98.7
Arsenic	75	0	20	0		19.4	97.0
Calcium	44	10000	10000	9583	95.8	9642.0	96.4
Carbon	13	20000	20000	NA		NA	
Chloride	37	100000	100000	NA		NA	
Iron	57	10000	10000	9850	98.5	9907.0	99.1
Magnesium	24	10000	10000	9815	98.2	9778.0	97.8
Molybdenum	98	200	200	196	98.0	201.7	100.9
Phosphorus	31	10000	10000	NA		NA	
Potassium	39	10000	10000	10030	100.3	9958.0	99.6
Sodium	23	10000	10000	9793	97.9	9907.0	99.1
Sulfur	34	10000	10000	NA		NA	
Titanium	47	200	200	204	102.0	215.3	107.7

Control Limits: All Metals 80%-120%

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QUALITY ASSURANCE SUMMARY
FORM 5A(MS/MSD)
MATRIX SPIKE/MATRIX SPIKE DUPLICATE
SDG No.: DHR08
Matrix: SOIL Level (low/med): LOW

Background Lab Sample ID: 6499035BKG Matrix Spike Lab Sample ID: 6499036MS Matrix Spike Duplicate Lab Sample ID: 6499037MSD
% Solids for Sample: 80.8
Batch Id(s): P34926A, P34908A, P34911A

		BKG Sample		MS Sample		MSD Sample		MS Spike	MSD Spike		MS		MSD				Control Limit		
Analyte	Mass	Result	C	Result	C	Result	C	Added	Added	Units	%R	Q	%R	Q	RPD	Q	%R	RPD	M
Arsenic	75	15.2504		17.7905		17.0718		2.4032	2.4752	MG/KG	106		74		4			20	MS
Barium		76.0603		342.3856		344.4739		240.3153	240.3153	MG/KG	111		112		1		75 - 125	20	P
Cadmium		1.0198		6.7613		6.7408		6.0079	6.0079	MG/KG	96		95		0		75 - 125	20	P
Chromium		21.8679		53.0112		52.4777		24.0315	24.0315	MG/KG	130	N	127	N	1		75 - 125	20	P
Lead		14.8051		33.9229		32.2695		18.0236	18.0236	MG/KG	106		97		5		75 - 125	20	P
Mercury		0.0222	B	0.2205		0.2085		0.2005	0.1986	MG/KG	99		94		6		80 - 120	20	CV
Selenium		0.8092	U	17.9263		18.3757		18.0236	18.0236	MG/KG	99		102		2		75 - 125	20	P
Silver		0.0988	U	5.8180		5.8012		6.0079	6.0079	MG/KG	97		97		0		75 - 125	20	P

METHODS:
P = ICP Atomic Emission Spectrometer CV = Cold Vapor
MS = ICP Mass Spectrometry AF = Cold Vapor Atomic Fluorescence

CONCENTRATION QUALIFIERS:
U= Below MDL, B= Below LOQ
FLAGS:
N = Matrix Spike OOS, * = Duplicate OOS

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QUALITY ASSURANCE SUMMARY
FORM 5B
POST DIGEST SPIKE SAMPLE RECOVERY
SDG No.: DHR08
Matrix: SOIL Level (low/med): LOW

Background Lab Sample ID: 6499035BKG
Post Digest Spike Lab Sample ID: 6499035A
Batch ID(s): P34908A
Concentration Units: UG/L

Analyte	Mass	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Chromium			370.1100		183.7600		200.0000	93		P

Comments:

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U= Below MDL
MS = ICP Mass Spectrometry	B= Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	

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QUALITY ASSURANCE SUMMARY
FORM 6
DUPLICATES
SDG No.: DHR08
Matrix: SOIL Level (low/med): LOW

Background Lab Sample ID: 6499035BKG
% Solids for Duplicate: 81.5
Batch ID(s): P34926A, P34908A, P34911A
Concentration Units: MG/KG

Duplicate Lab Sample ID: 6499038DUP
% Solids for Sample: 80.8

Analyte	Mass	Control Limit	Samples (S)	C	Duplicate (D)	C	RPD	Q	M
Arsenic	75		15.2504		14.3279		6		MS
Barium			76.0603		79.6037		5		P
Cadmium		0.6	1.0198		0.9950		2		P
Chromium			21.8679		21.2847		3		P
Lead			14.8051		14.5145		2		P
Mercury			0.0222	B	0.0261	B	16		CV
Selenium			0.8092	U	0.8333	U			P
Silver			0.0988	U	0.1017	U			P

NOTE: An asterisk (*) in column "Q" indicates poor duplicate precision (RPD > 20% OR |(S) - (D)| > LOQ for values < 5x LOQ).
The data are considered to be valid because the laboratory control sample is within the control limits. See the Laboratory Control Sample.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

CONCENTRATION QUALIFIERS:
U= Below MDL
B= Below LOQ
FLAGS:
* = Duplicate Out of Spec

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QUALITY ASSURANCE SUMMARY
FORM 7
LABORATORY CONTROL SAMPLE
SDG No.: DHR08
Matrix: SOIL

Analyte	Mass	Lab Sample ID	Units	True	Found	C	Control Limits (%)	%R	M	In Spec
Arsenic	75	P34926AQ	MG/KG	128.0	134.5		83 - 111	105	MS	Yes
Barium		P34908AQ	MG/KG	314.0	320.1		89 - 112	102	P	Yes
Cadmium		P34908AQ	MG/KG	112.9	112.7		88 - 117	100	P	Yes
Chromium		P34908AQ	MG/KG	100.4	102.3		80 - 111	102	P	Yes
Lead		P34908AQ	MG/KG	134.0	132.0		90 - 115	99	P	Yes
Mercury		P34911AQ	MG/KG	15.0	14.7		83 - 119	98	CV	Yes
Selenium		P34908AQ	MG/KG	208.0	207.3		83 - 111	100	P	Yes
Silver		P34908AQ	MG/KG	54.0	55.0		86 - 112	102	P	Yes

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

CONCENTRATION QUALIFIERS:
U= Below MDL
B= Below LOQ

DHR08 0031

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QUALITY ASSURANCE SUMMARY
FORM 9
SERIAL DILUTIONS
SDG No.: DHR08
Matrix: SOIL Level (low/med): LOW

Background Lab Sample ID: 6499035BKG Serial Dilution Lab Sample ID: 6499035L
Batch ID(s): P34926A, P34908A
Concentration Units: UG/L

Analyte	Mass	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Diff.	Q	M
Arsenic	75	63.4600		60.5000		5		MS
Barium		639.1500		645.5500		1		P
Cadmium		8.5700		7.4500	B	13		P
Chromium		183.7600		185.1500		1		P
Lead		124.4100		130.9000		5		P
Selenium		6.8000	U	34.0000	U			P
Silver		0.8300	U	4.1500	U			P

NOTE: An E in column Q indicates the presence of a chemical or physical interference in the matrix when the % difference is greater than 10%. This applies only when (I) is greater than or equal to 50x MDL for ICP, 100x MDL for ICP-MS (6020), 50x MDL for ICP-MS (200.8), or 25x MDL for GFAA.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry

CONCENTRATION QUALIFIERS:
U= Below MDL
B= Below LOQ

FLAGS:
E = Matrix Effects exist as proven by Serial Dilution or Spiked Dilution

DHR08 0832

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QUALITY ASSURANCE SUMMARY
FORM 10
INSTRUMENT DETECTION LIMITS (QUARTERLY)
SDG No.: DHR08

Method: P
Instrument ID: 11016
Date: 10/2011

Analyte	Wavelength (nm)	Background	IDL (UG/L)
Barium			
Cadmium			
Chromium			
Lead			
Selenium	196.09		3.0
Silver			

Comments:

DHR08 8333

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 10
INSTRUMENT DETECTION LIMITS (QUARTERLY)
SDG No.: DHR08

Method: P
Instrument ID: 16315
Date: 10/2011

Analyte	Wavelength (nm)	Background	IDL (UG/L)
Barium	455.40		0.33
Cadmium	226.50		0.33
Chromium	267.72		0.64
Lead	220.35		1.8
Selenium	196.09		2.8
Silver	328.06		0.40

Comments:

DHR08 0234

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 10
INSTRUMENT DETECTION LIMITS (QUARTERLY)
SDG No.: DHR08

Method: MS
Instrument ID: 11332
Date: 10/2011

Analyte	MASS (amu)	Background	IDL (UG/L)
Arsenic	75		0.40

Comments:

DHR08 0335

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 10
INSTRUMENT DETECTION LIMITS (QUARTERLY)
SDG No.: DHR08

Method: CV
Instrument ID: 62347
Date: 10/2011

Analyte	Wavelength (nm)	Background	IDL (UG/L)
Mercury	254.00		0.019

Comments:

DHR08 8336

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 10 MDL
METHOD DETECTION LIMITS (ANNUALLY)
SDG No.: DHR08
Matrix: SOIL

Method: P
Date: 06/2011

Analyte	Wavelength (nm)	Background	LOQ (UG/L)	MDL (UG/L)
Barium	455.40		5.0	0.18
Cadmium	226.50		5.0	0.20
Chromium	267.72		15.0	1.4
Lead	220.35		15.0	2.2
Selenium	196.09		20.0	6.8
Silver	328.06		5.0	0.83

The LOQ/MDL must be adjusted for % Solids and Sample Weight for samples reporting in mg/kg and ug/L.

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 10 MDL
METHOD DETECTION LIMITS (ANNUALLY)
SDG No.: DHR08
Matrix: SOIL

Method: MS
Date: 06/2011

Analyte	Mass	Background	LOQ (UG/L)	MDL (UG/L)
Arsenic	75		2.0	0.40

The LOQ/MDL must be adjusted for % Solids and Sample Weight for samples reporting in mg/kg and ug/L.

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 10 MDL
METHOD DETECTION LIMITS (ANNUALLY)
SDG No.: DHR08
Matrix: SOIL

Method: CV
Date: 06/2011

Analyte	Wavelength (nm)	Background	LOQ (UG/L)	MDL (UG/L)
Mercury	254.00		0.60	0.043

The LOQ/MDL must be adjusted for % Solids and Sample Weight for samples reporting in mg/kg and ug/L.

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 11
ICP INTERELEMENT CORRECTION FACTORS (BIANNUALLY)
SDG No.: DHR08

Instrument ID: 11016
Date: 11/2011

Analyte	Wavelength (nm)	Interelement Correction Factor for: AL	CA	FE	MG	CO
Selenium	196.09	0.0000310	0.0000000	0.0000260	0.0000000	0.0000310

Comments:

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QUALITY ASSURANCE SUMMARY
FORM 11
ICP INTERELEMENT CORRECTION FACTORS (BIANNUALLY)
SDG No.: DHR08

Instrument ID: 11016
Date: 11/2011

Analyte	Wavelength (nm)	Interelement Correction Factor for: MN	--	--	--	--
Selenium	196.09	0.0004790				

Comments:

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QUALITY ASSURANCE SUMMARY
FORM 11
ICP INTERELEMENT CORRECTION FACTORS (BIANNUALLY)
SDG No.: DHR08

Instrument ID: 16315
Date: 11/2011

Analyte	Wavelength (nm)	Interelement Correction Factor for: AL	CA	FE	MG	CO
Cadmium	226.50	0.0000000	0.0000000	0.0000500	0.0000000	0.0000000
Lead	220.35	0.0002190	0.0000000	0.0000210	0.0000000	0.0000600
Selenium	196.09	0.0000000	0.0000000	-0.0000150	0.0000000	-0.0000160
Silver	328.06	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000

Comments:

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QUALITY ASSURANCE SUMMARY
FORM 11
ICP INTERELEMENT CORRECTION FACTORS (BIANNUALLY)
SDG No.: DHR08

Instrument ID: 16315
Date: 11/2011

Analyte	Wavelength (nm)	Interelement Correction Factor for: CR	CU	MN	MO	NI
Cadmium	226.50	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Lead	220.35	0.0000500	0.0002420	0.0000000	-0.0004460	0.0001140
Selenium	196.09	-0.0001630	0.0000000	0.0004790	0.0000000	0.0000000
Silver	328.06	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000

Comments:

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QUALITY ASSURANCE SUMMARY
FORM 11
ICP INTERELEMENT CORRECTION FACTORS (BIANNUALLY)
SDG No.: DHR08

Instrument ID: 16315
Date: 11/2011

Analyte	Wavelength (nm)	Interelement Correction Factor for: SI	ZR	--	--	--
Cadmium	226.50	0.0000000	0.0000000			
Lead	220.35	0.0001020	0.0000000			
Selenium	196.09	0.0000000	0.0000000			
Silver	328.06	0.0000000	0.0068660			

Comments:

DHR08 0244

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QUALITY ASSURANCE SUMMARY
FORM 12
LINEAR RANGES
SDG No.: DHR08

Method: P
Instrument ID: 11016
Date: 10/2011

Analyte	Wavelength (nm)	Integration Time (Sec.)	Concentration (ug/L)
Barium			
Cadmium			
Chromium			
Lead			
Selenium	196.09	10.00	20000.0
Silver			

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

DHR08 0345

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QUALITY ASSURANCE SUMMARY
FORM 12
LINEAR RANGES
SDG No.: DHR08

Method: P
Instrument ID: 16315
Date: 10/2011

Analyte	Wavelength (nm)	Integration Time (Sec.)	Concentration (ug/L)
Barium	455.4	10.00	5000.0
Cadmium	226.5	10.00	20000.0
Chromium	267.72	10.00	20000.0
Lead	220.35	10.00	10000.0
Selenium	196.09	10.00	10000.0
Silver	328.06	10.00	10000.0

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 13
PREPARATION LOG
SDG No.: DHR08

Method: P
Batch ID: P34908A

Lab Sample ID	Date	Sample Weight(gram)	Final Volume(ml)
6499034	12/15/2011	1.02	100
6499039	12/15/2011	1.02	100
6499040	12/15/2011	1.03	100
6499041	12/15/2011	1.03	100
6499042	12/15/2011	1.02	100
6499043	12/15/2011	1.02	100
6499044	12/15/2011	1.04	100
6499045	12/15/2011	1.03	100
6499046	12/15/2011	1.01	100
6499047	12/15/2011	1.03	100
6499048	12/15/2011	1.04	100
6499049	12/15/2011	1.01	100
6499050	12/15/2011	1.00	100
6499051	12/15/2011	1.02	100
6499052	12/15/2011	1.00	100
6499035BKG	12/15/2011	1.04	100
6499038DUP	12/15/2011	1.01	100
6499037MSD	12/15/2011	1.03	100
6499036MS	12/15/2011	1.03	100
P34908AB	12/15/2011	1.00	100
P34908AQ	12/15/2011	1.02	100

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

LEGEND:
BKG = Background
DUP = Duplicate
MS = Matrix Spike
MSD = Matrix Spike Duplicate
B = Blank
Q = Laboratory Control Sample
Y = Laboratory Control Sample Duplicate

DHR08 0347

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QUALITY ASSURANCE SUMMARY
FORM 13
PREPARATION LOG
SDG No.: DHR08

Method: MS
Batch ID: P34926A

Lab Sample ID	Date	Sample Weight(gram)	Final Volume(ml)
6499034	12/15/2011	1.03	100
6499039	12/15/2011	1.03	100
6499040	12/15/2011	1.01	100
6499041	12/15/2011	1.01	100
6499042	12/15/2011	1.03	100
6499043	12/15/2011	1.02	100
6499044	12/15/2011	1.02	100
6499045	12/15/2011	1.02	100
6499046	12/15/2011	1.03	100
6499047	12/15/2011	1.03	100
6499048	12/15/2011	1.04	100
6499049	12/15/2011	1.03	100
6499050	12/15/2011	1.01	100
6499051	12/15/2011	1.00	100
6499052	12/15/2011	1.02	100
6499035BKG	12/15/2011	1.03	100
6499038DUP	12/15/2011	1.04	100
6499037MSD	12/15/2011	1.00	100
6499036MS	12/15/2011	1.03	100
P34926AB	12/15/2011	1.00	100
P34926AQ	12/15/2011	1.03	100

METHODS:
- P = ICP Atomic Emission Spectrometer
- MS = ICP Mass Spectrometry
- CV = Cold Vapor
- AF = Cold Vapor Atomic Fluorescence

LEGEND:
- BKG = Background
- DUP = Duplicate
- MS = Matrix Spike
- MSD = Matrix Spike Duplicate
- B = Blank
- Q = Laboratory Control Sample
- Y = Laboratory Control Sample Duplicate

DHR08 4348

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QUALITY ASSURANCE SUMMARY
FORM 13
PREPARATION LOG
SDG No.: DHR08

Method: CV
Batch ID: P34911A

Lab Sample ID	Date	Sample Weight(gram)	Final Volume(ml)
6499034	12/15/2011	0.60	100
6499039	12/15/2011	0.60	100
6499040	12/15/2011	0.62	100
6499041	12/15/2011	0.64	100
6499042	12/15/2011	0.61	100
6499043	12/15/2011	0.64	100
6499044	12/15/2011	0.64	100
6499045	12/15/2011	0.64	100
6499046	12/15/2011	0.64	100
6499047	12/15/2011	0.63	100
6499048	12/15/2011	0.62	100
6499049	12/15/2011	0.62	100
6499050	12/15/2011	0.61	100
6499051	12/15/2011	0.62	100
6499052	12/15/2011	0.63	100
6499035BKG	12/15/2011	0.63	100
6499038DUP	12/15/2011	0.61	100
6499037MSD	12/15/2011	0.62	100
6499036MS	12/15/2011	0.62	100
P34911AB	12/15/2011	0.62	100
P34911AQ	12/15/2011	0.63	100

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

LEGEND:
BKG = Background
DUP = Duplicate
MS = Matrix Spike
MSD = Matrix Spike Duplicate
B = Blank
Q = Laboratory Control Sample
Y = Laboratory Control Sample Duplicate

DHR08 8349

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QUALITY ASSURANCE SUMMARY
FORM 14
ANALYSIS RUN LOG
SDG No.: DHR08

Method: P
Instrument ID: 16315
Run Name: 1135304T71

Run Start Date: 12/19/2011
Run End Date: 12/19/2011

Lab Sample ID	D/F	Time	Analytes							
			AS	BA	CD	CR	PB	HG	SE	AG
S0	1.00	12:02		X	X	X	X		X	X
S	1.00	12:06								
S	1.00	12:09		X	X		X		X	X
S	1.00	12:13				X				
ICV	1.00	12:17		X	X	X	X		X	X
ICB	1.00	12:20		X	X	X	X		X	X
LLC	1.00	12:24		X	X	X	X		X	X
ICSA	1.00	12:27		X	X	X	X		X	X
ICSAB	1.00	12:31		X	X	X	X		X	X
CCV	1.00	12:35		X	X	X	X		X	X
CCB	1.00	12:38		X	X	X	X		X	X
P34908AB	1.00	12:42		X	X	X	X		X	X
P34908AQ	1.00	12:46		X	X	X	X		X	X
6499035BKG	1.00	12:50		X	X	X	X			X
6499035A	1.00	12:54				X				
6499038DUP	1.00	12:57		X	X	X	X			X
6499036MS	1.00	13:01		X	X	X	X		X	X
6499037MSD	1.00	13:05		X	X	X	X		X	X
6499035L	5.00	13:09		X	X	X	X			X
6499034	1.00	13:12		X	X	X	X		X	X
6499039	1.00	13:16		X	X	X	X		X	X
CCV	1.00	13:19		X	X	X	X		X	X
CCB	1.00	13:23		X	X	X	X		X	X
6499040	1.00	13:27		X	X	X	X			X
6499041	1.00	13:30		X	X	X	X		X	X
6499042	1.00	13:34		X	X	X	X		X	X
6499043	1.00	13:37		X	X	X	X		X	X
6499044	1.00	13:41		X	X	X	X			X
6499045	1.00	13:45		X	X	X	X			X
6499046	1.00	13:48		X	X	X	X		X	X
6499047	1.00	13:52		X	X	X	X			X
6499048	1.00	13:56		X	X	X	X			X
6499049	1.00	13:59		X	X	X	X		X	X
CCV	1.00	14:03		X	X	X	X		X	X
CCB	1.00	14:06		X	X	X	X		X	X
6499050	1.00	14:10		X	X	X	X		X	X
6499051	1.00	14:13		X	X	X	X			X
6499052	1.00	14:17		X	X	X	X		X	X

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

LEGEND:
BKG = Background
DUP = Duplicate
MS = Matrix Spike
MSD = Matrix Spike Duplicate
A = Post Digest Spike
L = Serial Dilution
B = Blank
Q = Laboratory Control Sample
Y = Laboratory Control Sample Duplicate

DHR08: 83548

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QUALITY ASSURANCE SUMMARY
FORM 14
ANALYSIS RUN LOG
SDG No.: DHR08

Method: P
Instrument ID: 16315
Run Name: 1135304T71

Run Start Date: 12/19/2011
Run End Date: 12/19/2011

Lab Sample ID	D/F	Time	AS	BA	CD	CR	PB	HG	SE	AG
LLC	1.00	14:21		X	X	X	X		X	X
ICSA	1.00	14:25		X	X	X	X		X	X
ICSAB	1.00	14:28		X	X	X	X		X	X
CCV	1.00	14:32		X	X	X	X		X	X
CCB	1.00	14:36		X	X	X	X		X	X

METHODS:
- P = ICP Atomic Emission Spectrometer
- MS = ICP Mass Spectrometry
- CV = Cold Vapor
- AF = Cold Vapor Atomic Fluorescence

LEGEND:
- BKG = Background
- DUP = Duplicate
- MS = Matrix Spike
- MSD = Matrix Spike Duplicate
- A = Post Digest Spike
- L = Serial Dilution
- B = Blank
- Q = Laboratory Control Sample
- Y = Laboratory Control Sample Duplicate

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QUALITY ASSURANCE SUMMARY
FORM 14
ANALYSIS RUN LOG
SDG No.: DHR08

Method: P
Instrument ID: 11016
Run Name: 1135405T70

Run Start Date: 12/20/2011
Run End Date: 12/20/2011

Lab Sample ID	D/F	Time	Analytes AS	BA	CD	CR	PB	HG	SE	AG
S0	1.00	10:18							X	
S	1.00	10:22								
S	1.00	10:26							X	
S	1.00	10:30								
ICV	1.00	10:34							X	
ICB	1.00	10:38							X	
LLC	1.00	10:42							X	
ICSA	1.00	10:46							X	
ICSAB	1.00	10:50							X	
CCV	1.00	10:54							X	
CCB	1.00	10:58							X	
6499035BKG	1.00	11:02							X	
6499035A	1.00	11:06								
6499038DUP	1.00	11:10							X	
6499035L	5.00	11:14							X	
6499040	1.00	11:18							X	
6499044	1.00	11:22							X	
6499045	1.00	11:26							X	
6499047	1.00	11:30							X	
6499048	1.00	11:35							X	
6499051	1.00	11:39							X	
CCV	1.00	11:43							X	
CCB	1.00	11:46							X	
ZZZZZZ	1.00	11:50								
ZZZZZZ	1.00	11:54								
ZZZZZZ	1.00	11:59								
ZZZZZZ	1.00	12:03								
ZZZZZZ	1.00	12:06								
ZZZZZZ	1.00	12:10								
LLC	1.00	12:14							X	
ICSA	1.00	12:18							X	
ICSAB	1.00	12:23							X	
CCV	1.00	12:27							X	
CCB	1.00	12:31							X	

METHODS:
- P = ICP Atomic Emission Spectrometer
- MS = ICP Mass Spectrometry
- CV = Cold Vapor
- AF = Cold Vapor Atomic Fluorescence

LEGEND:
- BKG = Background
- DUP = Duplicate
- MS = Matrix Spike
- MSD = Matrix Spike Duplicate
- A = Post Digest Spike
- L = Serial Dilution
- B = Blank
- Q = Laboratory Control Sample
- Y = Laboratory Control Sample Duplicate

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QUALITY ASSURANCE SUMMARY
FORM 14
ANALYSIS RUN LOG
SDG No.: DHR08

Method: MS
Instrument ID: 11332
Run Name: 1135506E03

Run Start Date: 12/21/2011
Run End Date: 12/21/2011

Lab Sample ID	D/F	Time	Analytes							
			AS	BA	CD	CR	PB	HG	SE	AG
S0	1.00	10:54	X							
S	1.00	10:56	X							
LRS	1.00	10:57	X							
CCS	1.00	10:59	X							
ICV	1.00	11:01	X							
ICB	1.00	11:02	X							
LLC	1.00	11:04	X							
ICSA	1.00	11:05	X							
ICSAB	1.00	11:07	X							
CCV	1.00	11:08	X							
CCB	1.00	11:10	X							
P34926AB	2.00	11:12	X							
P34926AQ	25.00	11:13	X							
6499035BKG	2.00	11:15	X							
6499035A	2.00	11:16								
6499038DUP	2.00	11:18	X							
6499036MS	2.00	11:19	X							
6499037MSD	2.00	11:21	X							
6499035L	10.00	11:22	X							
CCV	1.00	11:24	X							
CCB	1.00	11:26	X							
6499034	2.00	11:27	X							
6499039	2.00	11:29	X							
6499040	2.00	11:30	X							
6499041	2.00	11:32	X							
6499042	2.00	11:33	X							
6499043	2.00	11:35	X							
6499044	2.00	11:37	X							
6499045	2.00	11:38	X							
6499046	2.00	11:40	X							
6499047	2.00	11:41	X							
CCV	1.00	11:43	X							
CCB	1.00	11:44	X							
6499048	2.00	11:46	X							
6499049	2.00	11:48	X							
6499050	2.00	11:49	X							
6499051	2.00	11:51	X							
6499052	2.00	11:52	X							

METHODS:
- P = ICP Atomic Emission Spectrometer
- MS = ICP Mass Spectrometry
- CV = Cold Vapor
- AF = Cold Vapor Atomic Fluorescence

LEGEND:
- BKG = Background
- DUP = Duplicate
- MS = Matrix Spike
- MSD = Matrix Spike Duplicate
- A = Post Digest Spike
- L = Serial Dilution
- B = Blank
- Q = Laboratory Control Sample
- Y = Laboratory Control Sample Duplicate

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QUALITY ASSURANCE SUMMARY
FORM 14
ANALYSIS RUN LOG
SDG No.: DHR08

Method: MS
Instrument ID: 11332
Run Name: 1135506E03

Run Start Date: 12/21/2011
Run End Date: 12/21/2011

Lab Sample ID	D/F	Time	Analytes																													
			AS	BA	CD	CR	PB	HG	SE	AG																						
LLC	1.00	11:54	X																													
ICSA	1.00	11:55	X																													
ICSAB	1.00	11:57	X																													
CCV	1.00	11:59	X																													
CCB	1.00	12:00	X																													

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

LEGEND:
BKG = Background
DUP = Duplicate
MS = Matrix Spike
MSD = Matrix Spike Duplicate
A = Post Digest Spike
L = Serial Dilution
B = Blank
Q = Laboratory Control Sample
Y = Laboratory Control Sample Duplicate

DHR08 0354

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QUALITY ASSURANCE SUMMARY
FORM 14
ANALYSIS RUN LOG
SDG No.: DHR08

Method: CV
Instrument ID: 62347
Run Name: 1135001M06

Run Start Date: 12/16/2011
Run End Date: 12/16/2011

Lab Sample ID	D/F	Time	Analytes							
			AS	BA	CD	CR	PB	HG	SE	AG
S0	1.00	06:10						X		
S0.2	1.00	06:11						X		
S0.5	1.00	06:13						X		
S1.0	1.00	06:14						X		
S2.5	1.00	06:15						X		
S5.0	1.00	06:17						X		
ICV	1.00	06:19						X		
ICB	1.00	06:20						X		
CRA	1.00	06:21						X		
CCV	1.00	06:23						X		
CCB	1.00	06:24						X		
ZZZZZZ	1.00	06:25								
ZZZZZZ	50.00	06:26								
ZZZZZZ	1.00	06:27								
6499035BKG	1.00	06:29						X		
6499035A	1.00	06:30								
6499038DUP	1.00	06:32						X		
6499036MS	1.00	06:33						X		
6499037MSD	1.00	06:34						X		
6499039	1.00	06:35						X		
6499040	1.00	06:36						X		
CCV	1.00	06:38						X		
CCB	1.00	06:39						X		
6499041	1.00	06:40						X		
6499042	1.00	06:42						X		
6499043	1.00	06:43						X		
6499044	1.00	06:44						X		
6499045	1.00	06:46						X		
6499046	1.00	06:47						X		
6499047	1.00	06:48						X		
6499048	1.00	06:49						X		
6499049	1.00	06:50						X		
6499050	1.00	06:52						X		
CCV	1.00	06:53						X		
CCB	1.00	06:54						X		
6499051	1.00	06:56						X		
6499052	1.00	06:57						X		
ZZZZZZ	1.00	06:58								

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

LEGEND:
BKG = Background
DUP = Duplicate
MS = Matrix Spike
MSD = Matrix Spike Duplicate
A = Post Digest Spike
L = Serial Dilution
B = Blank
Q = Laboratory Control Sample
Y = Laboratory Control Sample Duplicate

DHR08 0355

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QUALITY ASSURANCE SUMMARY
FORM 14
ANALYSIS RUN LOG
SDG No.: DHR08

Method: CV
Instrument ID: 62347
Run Name: 1135001M06

Run Start Date: 12/16/2011
Run End Date: 12/16/2011

Lab Sample ID	D/F	Time	Analytes								
			AS	BA	CD	CR	PB	HG	SE	AG	
ZZZZZZ	50.00	06:59									
ZZZZZZ	1.00	07:01									
ZZZZZZ	1.00	07:02									
ZZZZZZ	1.00	07:03									
ZZZZZZ	1.00	07:04									
ZZZZZZ	1.00	07:05									
ZZZZZZ	1.00	07:06									
CCV	1.00	07:07						X			
CCB	1.00	07:09						X			
ZZZZZZ	1.00	07:10									
ZZZZZZ	1.00	07:11									
ZZZZZZ	1.00	07:12									
ZZZZZZ	1.00	07:13									
ZZZZZZ	1.00	07:15									
ZZZZZZ	1.00	07:16									
ZZZZZZ	1.00	07:17									
ZZZZZZ	1.00	07:18									
ZZZZZZ	1.00	07:19									
ZZZZZZ	1.00	07:20									
CCV	1.00	07:22						X			
CCB	1.00	07:23						X			
ZZZZZZ	1.00	07:24									
ZZZZZZ	1.00	07:25									
ZZZZZZ	1.00	07:27									
ZZZZZZ	1.00	07:28									
ZZZZZZ	1.00	07:29									
ZZZZZZ	1.00	07:30									
ZZZZZZ	1.00	07:32									
ZZZZZZ	1.00	07:33									
ZZZZZZ	1.00	07:35									
ZZZZZZ	50.00	07:36									
CCV	1.00	07:37						X			
CCB	1.00	07:38						X			
ZZZZZZ	1.00	07:40									
ZZZZZZ	1.00	07:41									
ZZZZZZ	1.00	07:44									
ZZZZZZ	200.00	07:51									
ZZZZZZ	200.00	07:54									

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

LEGEND:
BKG = Background
DUP = Duplicate
MS = Matrix Spike
MSD = Matrix Spike Duplicate
A = Post Digest Spike
L = Serial Dilution
B = Blank
Q = Laboratory Control Sample
Y = Laboratory Control Sample Duplicate

DHR08 0156

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QUALITY ASSURANCE SUMMARY
FORM 14
ANALYSIS RUN LOG
SDG No.: DHR08

Method: CV
Instrument ID: 62347
Run Name: 1135001M06

Run Start Date: 12/16/2011
Run End Date: 12/16/2011

Lab Sample ID	D/F	Time	Analytes																													
			AS	BA	CD	CR	PB	HG	SE	AG																						
ZZZZZZ	200.00	07:55																														
ZZZZZZ	200.00	07:57																														
ZZZZZZ	200.00	07:59																														
ZZZZZZ	25.00	08:01																														
P34911AB	1.00	08:02						X																								
CCV	1.00	08:03						X																								
CCB	1.00	08:06						X																								
P34911AQ	50.00	08:07						X																								
6499034	1.00	08:09						X																								
CCV	1.00	08:10						X																								
CCB	1.00	08:12						X																								

METHODS:
- P = ICP Atomic Emission Spectrometer
- MS = ICP Mass Spectrometry
- CV = Cold Vapor
- AF = Cold Vapor Atomic Fluorescence

LEGEND:
- BKG = Background
- DUP = Duplicate
- MS = Matrix Spike
- MSD = Matrix Spike Duplicate
- A = Post Digest Spike
- L = Serial Dilution
- B = Blank
- Q = Laboratory Control Sample
- Y = Laboratory Control Sample Duplicate

DHR08 0352

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QUALITY ASSURANCE SUMMARY
FORM 15
ICP-MS TUNE
SDG No.: DHR08
Matrix: SOIL

Instrument ID: 11332
Date: 12/21/2011

Analyte	Mass	Avg. Measured Mass (amu)	Avg. Peak Width at 5% Peak Height (amu)	%RSD
Lithium	6.000	6.10	0.60	1.8
Magnesium	24.000	24.05	0.60	2.2
Rhodium	103.000	103.05	0.60	1.5
Indium	115.000	115.05	0.60	1.5
Cerium	140.000	140.05	0.60	1.1
Lead	208.000	208.00	0.65	1.1
Uranium	238.000	237.95	0.60	0.6

Comments:

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QUALITY ASSURANCE SUMMARY
FORM 16
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
SDG No.: DHR08

Instrument ID: 11332
Run Name: 1135506E03

Start Date: 12/21/2011
End Date: 12/21/2011

Lab Sample ID	Time	Internal Standards %RI For: Element IN-1-115	Q	Element	Q	Element	Q	Element	Q	Element	Q	Element	Q	Element	Q
S0	10:54	100													
S	10:56	98													
LRS	10:57	92													
CCS	10:59	97													
ICV	11:01	100													
ICB	11:02	99													
LLC	11:04	100													
ICSA	11:05	102													
ICSAB	11:07	100													
CCV	11:08	102													
CCB	11:10	99													
P34926AB	11:12	95													
P34926AQ	11:13	100													
6499035BKG	11:15	94													
6499035A	11:16	95													
6499038DUP	11:18	96													
6499036MS	11:19	96													
6499037MSD	11:21	96													
6499035L	11:22	97													
CCV	11:24	93													
CCB	11:26	95													
6499034	11:27	96													
6499039	11:29	96													
6499040	11:30	97													
6499041	11:32	95													
6499042	11:33	94													
6499043	11:35	91													
6499044	11:37	91													
6499045	11:38	92													
6499046	11:40	89													
6499047	11:41	90													
CCV	11:43	91													
CCB	11:44	93													
6499048	11:46	90													
6499049	11:48	90													
6499050	11:49	88													
6499051	11:51	93													
6499052	11:52	91													

LEGEND:
- BKG = Background
- DUP = Duplicate
- MS = Matrix Spike
- MSD = Matrix Spike Duplicate
- A = Post Digest Spike
- L = Serial Dilution
- B = Blank
- Q = Laboratory Control Sample
- Y = Laboratory Control Sample Duplicate

FLAG:
- R = Internal Standard Relative Intensity OOS

INTERNAL STANDARD ELEMENTS
- BE = Beryllium
- BI = Bismuth
- GE = Germanium
- HO = Holmium
- IN = Indium
- LI = Lithium
- SC = Scandium
- TB = Terbium
- Y = Yttrium

DHR08 8359

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QUALITY ASSURANCE SUMMARY
FORM 16
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
SDG No.: DHR08

Instrument ID: 11332
Run Name: 1135506E03

Start Date: 12/21/2011
End Date: 12/21/2011

Lab Sample ID	Time	Internal Standards %RI For: Element IN-1-115	Q	Element	Q	Element	Q	Element	Q	Element	Q	Element	Q	Element	Q
LLC	11:54	93													
ICSA	11:55	93													
ICSAB	11:57	89													
CCV	11:59	95													
CCB	12:00	94													

LEGEND:
- BKG = Background
- DUP = Duplicate
- MS = Matrix Spike
- MSD = Matrix Spike Duplicate
- A = Post Digest Spike
- L = Serial Dilution
- B = Blank
- Q = Laboratory Control Sample
- Y = Laboratory Control Sample Duplicate

FLAG:
- R = Internal Standard Relative Intensity OOS

INTERNAL STANDARD ELEMENTS
- BE = Beryllium
- BI = Bismuth
- GE = Germanium
- HO = Holmium
- IN = Indium
- LI = Lithium
- SC = Scandium
- TB = Terbium
- Y = Yttrium

DHR08 18368

Moisture Data

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CLIENT: CH2M Hill, Inc.
SDG: DHR08

MOISTURE

SAMPLE NUMBERS:

Sample #	Sample Code
6499034	40002
6499035	40305BKG
6499036	40305MS
6499037	40305MSD
6499038	40305DUP
6499039	40810
6499040	30002
6499041	30305
6499042	30810
6499043	20002
6499044	HGRD-FD
6499045	20305
6499046	20810
6499047	10002
6499048	10308
6499049	10810
6499050	50002
6499051	50305
6499052	50810

Laboratory Compliance Quality Control

Analysis Name	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 11350820005A	Sample number(s): 6499034-6499044				
Moisture	100		99-101		
Moisture	100		99-101		
Moisture Duplicate	100		99-101		
Batch number: 11350820005B	Sample number(s): 6499045-6499052				
Moisture	100		99-101		

Sample Matrix Quality Control

Analysis Name	BKG Conc	DUP Conc	RPD	RPD Max
Batch number: 11350820005A	Sample number(s): 6499034-6499044			
Moisture	19.2	18.5	3	15
Moisture	19.2	18.5	3	15
Moisture Duplicate	19.2	18.5	3	15
Batch number: 11350820005B	Sample number(s): 6499045-6499052			
Moisture	19.2	19.7	3	15

* - Outside of specification
(1) - The result for one or both determinations was less than five times the LOQ.

DHR08 0362

Moisture Data Report

Batch #: 11350820005

Sample ID	Batch ID	Analysis#	Tare Wt	Sample Wt	Dry Wt	%Moisture	Analysis Date (Emp#)	Verified Date (Emp#)
LCS 89.5% Std.			1.1388	5.0178	1.6787	89.24	12/16/11 (1201/SWF	12/19/11 (0236/CW)
6499034	A	00111	1.0842	8.9456	8.4376	17.80	12/16/11 (1201/SWF	12/19/11 (0236/CW)
6499035BKG	A	00111	1.0707	8.4776	7.9247	19.15	12/16/11 (1201/SWF	12/19/11 (0236/CW)
6499036MS	A	00118				19.15	12/16/11 (1201/SWF	12/19/11 (0236/CW)
6499037MSD	A	00118				19.15	12/16/11 (1201/SWF	12/19/11 (0236/CW)
6499038DUP	A	00118				19.15	12/16/11 (1201/SWF	12/19/11 (0236/CW)
6499038DUP	A	00121	1.1049	8.2154	7.7966	18.55	12/16/11 (1201/SWF	12/19/11 (0236/CW)
6499039	A	00111	1.1045	8.4363	7.9350	19.03	12/16/11 (1201/SWF	12/19/11 (0236/CW)
6499040	A	00111	1.0848	9.6177	9.0269	17.42	12/16/11 (1201/SWF	12/19/11 (0236/CW)
6499041	A	00111	1.1093	9.4841	8.8777	18.09	12/16/11 (1201/SWF	12/19/11 (0236/CW)
6499042	A	00111	1.1027	8.3696	7.7962	20.03	12/16/11 (1201/SWF	12/19/11 (0236/CW)
6499043	A	00111	1.0871	7.0543	6.8450	18.38	12/16/11 (1201/SWF	12/19/11 (0236/CW)
6499044FD	A	00111	1.0843	7.4125	7.2407	16.95	12/16/11 (1201/SWF	12/19/11 (0236/CW)
6499045BKG	B	00111	1.1039	9.0235	8.3947	19.20	12/16/11 (1201/SWF	12/19/11 (0236/CW)
6499045DUP	B	00111	1.1109	9.5888	8.8081	19.73	12/16/11 (1201/SWF	12/19/11 (0236/CW)
6499046	B	00111	1.0864	9.1499	8.4191	19.86	12/16/11 (1201/SWF	12/19/11 (0236/CW)
6499047	B	00111	1.1119	7.8905	7.5349	18.60	12/16/11 (1201/SWF	12/19/11 (0236/CW)
6499048	B	00111	1.0982	7.9555	7.5607	18.77	12/16/11 (1201/SWF	12/19/11 (0236/CW)
6499049	B	00111	1.0733	8.6120	7.7460	22.52	12/16/11 (1201/SWF	12/19/11 (0236/CW)
6499050	B	00111	1.0827	9.9750	9.4202	16.42	12/16/11 (1201/SWF	12/19/11 (0236/CW)
6499051	B	00111	1.0846	9.0463	8.4102	19.02	12/16/11 (1201/SWF	12/19/11 (0236/CW)
6499052	B	00111	1.0956	9.1023	8.3235	20.59	12/16/11 (1201/SWF	12/19/11 (0236/CW)

DHR08 8363

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Type I (No Raw Data) Data Package

Prepared for:

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

Project: Dow Hanging Rock, OH
Water and Soil Samples
Collected on 12/16/11

SDG# DHR12

GROUP	SAMPLE NUMBERS
1281639	6503453-6503457

PA Cert. # 36-00037
NY Cert. # 10670
NJ Cert. # PA011
NC Cert. # 521
TX Cert. # T104704194-08A-TX

Through our technical processes and second person review of data, we have established that our data/deliverables are in compliance with the methods and project requirements unless otherwise noted or previously resolved with the client.

Authorized by: Dana M Kauffman **Date:** 01/20/2012

Dana M. Kauffman
Manager

Any questions or concerns you might have regarding this data package should be directed to your client representative, Wendy Kozma at Ext. 1522.

Total Number of Pages 271

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Sample Reference List for SDG Number DHR12 with a Data Package Type of I-NODATA

11372 - CH2M Hill, Inc.

Project: Dow Hanging Rock, OH

Lab Sample Number	Lab Sample Code	Client Sample Description
6503453	-TB--	121611TB Water Sample
6503454	-W1--	HGR-IDW-W1 Composite Water Sample
6503455	--S1-	HGR-IDW-S1 Composite Soil Sample
6503456	--S2-	HGR-IDW-S2 Composite Soil Sample
6503457	--S3-	HGR-IDW-S3 Composite Soil Sample

Analysis Request/ Environmental Services Chain of Custody

Lancaster Laboratories

For Lancaster Laboratories use only

Acct. # 11372 Group# 1281639 Sample # 6503453-57 **COC #** 278482

Please print. Instructions on reverse side correspond with circled numbers.

For Lab Use Only
FSC: _____
SCR#: _____

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

(1) Client: Dow Hanging Rock Acct. #: _____
Project Name/#: 420671.01.FI PWSID #: _____
Project Manager: Mark Holland P.O.#: 420671-04
Sampler: Brian Wachter Quote #: _____
Name of state where samples were collected: Ohio

(2) (3) (4) (5) (6)

Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water (☐ Potable ☐ NPDES)	Other	Total # of Containers	VOCs - Total	SVOCs - Total	Metals - Total	Total Cyanide	BOD	TOC	TCLP VOCs - HOLD	TCLP SVOCs - HOLD	TCLP Metals - HOLD	Remarks	Temperature of samples upon receipt (if requested)
121611 TB	12/15/11	—	X			X		2	X										
HGR-IDW-W1	12/16/11	1100		X		X		9	X	X	X	X	X	X					
HGR-IDW-S1	12/16/11	1115		X	X			8	X	X					X	X	X		
HGR-IDW-S2	12/16/11	1130		X	X			8	X	X					X	X	X		
HGR-IDW-S3	12/16/11	1145		X	X			8	X	X					X	X	X		

[signature] 12/16/11

(7) **Turnaround Time Requested** (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed: _____
Rush results requested by (please circle): Phone Fax E-mail
Phone #: _____ Fax #: _____
E-mail address: _____

(8) **Data Package Options** (please circle if required)
Type I (validation/NJ Reg) TX TRRP-13
Type II (Tier II) MA MCP CT RCP
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)

SDG Complete? Yes No

Site-specific QC (MS/MSD/Dup)? Yes No
(if yes, indicate QC sample and submit triplicate volume.)
Internal COC Required? Yes / No _____

(9)

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	12/16/11	1330			
			[signature]	12-19-11	945

Lancaster Laboratories, Inc., 2425 New Holland Pike, Lancaster, PA 17601 (717) 656-2300 Fax: (717) 656-6766
Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client.

Issued by Dept. 6042 Management
2102.05

Lancaster Laboratories

Environmental Sample Administration
Receipt Documentation Log

Client/Project: Dow Hanging Rock

Date of Receipt: 12-17-11

Time of Receipt: 945

Source Code: 50-1

Shipping Container Sealed: (YES) NO

Custody Seal Present * : (YES) NO

* Custody seal was intact unless otherwise noted in the discrepancy section

Package: (Chilled) Not Chilled

Temperature of Shipping Containers							
Cooler #	Thermometer ID	Temperature (°C)	Temp Bottle (TB) or Surface Temp (ST)	Wet Ice (WI) or Dry Ice (DI) or Ice Packs (IP)	Ice Present? Y/N	Loose (L) Bagged Ice (B) or NA	Comments
1	2783	1.1	TB	WI	Y	B	
2							
3							
4							
5							
6							

Number of Trip Blanks received NOT listed on chain of custody: 0

Paperwork Discrepancy/Unpacking Problems:

Unpacker Signature/Emp#: Brandy Barclay 2299 **Date/Time:** 12-17-11 10:42

Issued by Dept. 6042 Management

2174.06

Lancaster Laboratories
2425 New Holland Pike • Lancaster, PA 17601

GC/MS Volatiles pH Log

Batch # : M113551AA

LLI#	pH	Date Checked	Initials/ Employee #	Comments
6503453	<2	12/22/2011	JML 1693	38A
6503454	<2	12/22/2011	JML 1693	38A

Bottle Code	Expected pH	Actual pH	Adjusted pH	Lot #	Preservative	Lab Submitted?	Sub-contracted?	Preservation Code	Date Entered
Stephanie Sanchez									
SDG: DHR12									
Group: 1281639									
Sample: 6503454									
008A	<2	<2			HNO3	Y	N	PK - Original container checked - pH is within correct range. (No preservative was added)	12/19/2011
002A	>12	>12			NaOH	Y	N	PK - Original container checked - pH is within correct range. (No preservative was added)	12/19/2011

Check	Present?	Corrective Substance	Lot #
Sulfide	N		
Res.Cl.	N		

091A	<2	<2			H3PO4	Y	N	PK - Original container checked - pH is within correct range. (No preservative was added)	12/19/2011

* linked sample

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10371 EPA 624 water

The water sample is purged and the volatile compounds are collected on a sorbent trap that is subsequently desorbed onto the GC/MS system for chromatographic and mass spectral analysis.

Reference: USEPA, 40 CFR Part 136, Appendix A, Method 624

10949 8260 Ext. Soil Master

The soil sample is purged and the volatile compounds are collected on a sorbent trap that is subsequently desorbed onto the GC/MS system for chromatographic and mass spectral analysis.

Reference: Test Methods for Evaluating Solid Wastes, SW-846 Method 8260B, December 1996

05716 EPA 600 ICP Digest (tot rec)

The sample is digested with nitric acid and hydrochloric acid.

Reference: Method 200.7 (rev. 4.4), Determination of Metals and Trace Metals in Water and Wastes by Inductively Coupled Plasma-Atomic Emission Spectrometry, USEPA 600/R-94/111 May 1994.

07051 Chromium
07053 Copper
07055 Lead
07061 Nickel
07072 Zinc

The solution resulting from the metals digestion is analyzed by Trace ICP.

Reference: Method 200.7 (rev. 4.4), Determination of Metals and Trace Metals in Water and Wastes by Inductively Coupled Plasma-Atomic Emission Spectrometry, USEPA 600/R-94/111 May 1994.

08108 625 Water Extraction

The sample aliquot is extracted with methylene chloride by separatory funnel. Extraction is performed at both a pH of 11 and 2. The extract is concentrated prior to analysis.

Reference: USEPA, 40 CFR Part 136, Appendix A, Method 625

10727 TCL 8270 (microwave)

The sample extract is analyzed by capillary column Gas Chromatography/Mass Spectrometry.

Reference: Test Methods for Evaluating Solid Wastes, SW-846 Method 8270C, December 1996

10334 Method 625

The sample extract is analyzed by capillary column Gas Chromatography/Mass Spectrometry.

Reference: USEPA, 40 CFR Part 136, Appendix A, Method 625

10809 BNA Soil Microwave

The sample aliquot is extracted using microwave extraction with 1:1 methylene chloride and acetone. The extract is concentrated prior to analysis.

Reference: Test Methods for Evaluating Solid Wastes, SW-846 Method 3546, Revision 0, February 2007.

00237 Total Cyanide (water)

During the distillation step, complex cyanides are converted to hydrogen cyanide which readily reacts with chloramine T. Simple cyanides are converted to cyanogen chloride by reaction with chloramine T. This reacts with pyridine and barbituric acid to give a red colored complex determined colorimetrically.

Reference: Method 335.4, Methods for Chemical Analysis of Water and Wastes USEPA 600 Revision 1.0, 1993

00492 Cyanide Water Distillation

The sample is acidified and distilled. Cyanide is released as hydrogen cyanide and is absorbed in a sodium hydroxide solution.

Reference: Method 335.4, Methods for Chemical Analysis of Water and Wastes USEPA 600 Revision 1.0, 1993

00273 Total Organic Carbon

TOC is determined by first removing the inorganic carbon from a sample. The remaining carbon is then oxidized to carbon dioxide, which is measured by a nondispersive infrared detector. The mass of carbon dioxide detected is proportional to the mass of TOC in the sample.

Reference: Standard Methods for the Examination of Water and Wastewater, 20th Edition, 1998, Method 5310 C

00206 Total Suspended Solids

A well-mixed sample is filtered through a tared gooch crucible. The residue on the filter is dried to a constant weight at 103-105C. The increase in weight is the total suspended solids.

Reference: Standard Methods for the Examination of Water and Wastewater, 20th Edition, 1998, Method 2540 D

00235 Biochemical Oxygen Demand

The sample is seeded and incubated with nutrients for 5 days at 20C. The reduction of dissolved oxygen concentration during incubation yields a measure of the BOD.

Reference: Standard Methods for the Examination of Water and Wastewater, 20th Edition, 1998, Method 5210 B

08079 HEM (oil & grease)

This method is for the determination of n-hexane extractable materials (HEM). A sample is serially extracted with n-hexane. The extract is dried and the residual HEM is determined gravimetrically.

Reference: EPA Methods for Chemical Analysis of Water and Wastes, EPA Method 1664A

00111 Moisture

A well-mixed sample is placed in a tared container and dried to a constant weight in an oven at 103-105C. The increase in weight is the total solids.

Reference: Standard Methods for the Examination of Water and Wastewater, 20th Edition, 1998, Method 2540 G

08389 GC/MS - LL Encore Prep

Two EnCore samples are collected per sample. The vials used for preparation are pre-preserved and pre-weighed. Two aliquots are extruded into a sodium bisulfate solution. The vials are re-weighed and the weight of the sample should be 5-g +/- .5 g. The prepared samples are then delivered to the lab for analysis.

Reference: Test Methods for Evaluating Solid Wastes, SW-846 Method 5035, November 2004.

07578 GC/MS-HL Encore Prep-NC

The sample is collected in an EnCore sampler and is submitted to the laboratory. A vial containing 5-ml methanol is prepared for each sample and weighed prior to adding the sample. After the sample is added to the vial, the vial is reweighed and the weight of sample is determined by difference. The weight of the sample should be 5-g +/- .5 g. The sample vial is then delivered to the lab for analysis.

Reference: Test Methods for Evaluating Solid Wastes, SW-846 Method 5035, November 2004.

Lancaster Laboratories

ANALYTICAL RESULTS

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425

Prepared for:

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

December 30, 2011

Project: Dow Hanging Rock, OH

Submittal Date: 12/17/2011
Group Number: 1281639
SDG: DHR12
PO Number: 420671-04
Release Number: DHR12
State of Sample Origin: OH

Client Sample Description	Lancaster Labs (LLI) #
121611TB Water Sample	6503453
HGR-IDW-W1 Composite Water Sample	6503454
HGR-IDW-S1 Composite Soil Sample	6503455
HGR-IDW-S2 Composite Soil Sample	6503456
HGR-IDW-S3 Composite Soil Sample	6503457

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Shane Lowe
ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Rachel Grand
1 COPY TO	Data Package Group	

DHR12 0005

Lancaster Laboratories

Questions? Contact your Client Services Representative
Wendy A Kozma at (717) 656-2300 Ext. 1522

Respectfully Submitted,

Robert Heisey

Robert Heisey
Senior Specialist

BHR12 8818

Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

J estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike sample not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*****	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as "analyze immediately" are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL LANCASTER LABORATORIES BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF LANCASTER LABORATORIES AND (B) WHETHER LANCASTER LABORATORIES HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Lancaster Laboratories which includes any conditions that vary from the Standard Terms and Conditions, and Lancaster hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Lancaster Laboratories

Sample Description: 121611TB Water Sample
Dow Hanging Rock, OH

LLI Sample # WW 6503453
LLI Group # 1281639
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/15/2011

Submitted: 12/17/2011 09:45
Reported: 12/30/2011 16:10

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

-TB-- SDG#: DHR12-01TB

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	EPA 624		ug/l		ug/l	
10371	Acrolein	107-02-8	10	U	10	1
10371	Acrylonitrile	107-13-1	10	U	10	1
10371	Benzene	71-43-2	0.9	U	0.9	1
10371	Bromodichloromethane	75-27-4	0.7	U	0.7	1
10371	Bromoform	75-25-2	0.8	U	0.8	1
10371	Bromomethane	74-83-9	2	U	2	1
10371	Carbon Tetrachloride	56-23-5	1	U	1	1
10371	Chlorobenzene	108-90-7	0.8	U	0.8	1
10371	Chloroethane	75-00-3	2	U	2	1
10371	2-Chloroethyl Vinyl Ether	110-75-8	2	U	2	1
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.					
10371	Chloroform	67-66-3	1	U	1	1
10371	Chloromethane	74-87-3	2	U	2	1
10371	Dibromochloromethane	124-48-1	1	U	1	1
10371	1,2-Dichlorobenzene	95-50-1	1	U	1	1
10371	1,3-Dichlorobenzene	541-73-1	1	U	1	1
10371	1,4-Dichlorobenzene	106-46-7	1	U	1	1
10371	1,1-Dichloroethane	75-34-3	1	U	1	1
10371	1,2-Dichloroethane	107-06-2	1	U	1	1
10371	1,1-Dichloroethene	75-35-4	0.9	U	0.9	1
10371	cis-1,2-Dichloroethene	156-59-2	1	U	1	1
10371	trans-1,2-Dichloroethene	156-60-5	1	U	1	1
10371	1,2-Dichloropropane	78-87-5	1	U	1	1
10371	cis-1,3-Dichloropropene	10061-01-5	1	U	1	1
10371	trans-1,3-Dichloropropene	10061-02-6	0.6	U	0.6	1
10371	Ethylbenzene	100-41-4	0.8	U	0.8	1
10371	Methylene Chloride	75-09-2	2	U	2	1
10371	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	1
10371	Tetrachloroethene	127-18-4	1	U	1	1
10371	Toluene	108-88-3	0.8	U	0.8	1
10371	1,1,1-Trichloroethane	71-55-6	1	U	1	1
10371	1,1,2-Trichloroethane	79-00-5	1	U	1	1
10371	Trichloroethene	79-01-6	1	U	1	1
10371	Trichlorofluoromethane	75-69-4	2	U	2	1
10371	Vinyl Chloride	75-01-4	2	U	2	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10371	EPA 624 water	EPA 624	1	M113551AA	12/21/2011 21:06	Jason M Long	1

DHR12 6812

Lancaster Laboratories

Sample Description: HGR-IDW-W1 Composite Water Sample
Dow Hanging Rock, OH

LLI Sample # WW 6503454
LLI Group # 1281639
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/16/2011 11:00 by BW

Submitted: 12/17/2011 09:45
Reported: 12/30/2011 16:10

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

-W1-- SDG#: DHR12-02

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**EPA 624**		ug/l		ug/l	
10371	Acrolein	107-02-8	10	U	10	1
10371	Acrylonitrile	107-13-1	10	U	10	1
10371	Benzene	71-43-2	0.9	U	0.9	1
10371	Bromodichloromethane	75-27-4	0.7	U	0.7	1
10371	Bromoform	75-25-2	0.8	U	0.8	1
10371	Bromomethane	74-83-9	2	U	2	1
10371	Carbon Tetrachloride	56-23-5	1	U	1	1
10371	Chlorobenzene	108-90-7	0.8	U	0.8	1
10371	Chloroethane	75-00-3	2	U	2	1
10371	2-Chloroethyl Vinyl Ether	110-75-8	2	U	2	1
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.					
10371	Chloroform	67-66-3	2	J	1	1
10371	Chloromethane	74-87-3	2	U	2	1
10371	Dibromochloromethane	124-48-1	1	U	1	1
10371	1,2-Dichlorobenzene	95-50-1	1	U	1	1
10371	1,3-Dichlorobenzene	541-73-1	1	U	1	1
10371	1,4-Dichlorobenzene	106-46-7	1	U	1	1
10371	1,1-Dichloroethane	75-34-3	1	U	1	1
10371	1,2-Dichloroethane	107-06-2	1	U	1	1
10371	1,1-Dichloroethene	75-35-4	0.9	U	0.9	1
10371	cis-1,2-Dichloroethene	156-59-2	1	U	1	1
10371	trans-1,2-Dichloroethene	156-60-5	1	U	1	1
10371	1,2-Dichloropropane	78-87-5	1	U	1	1
10371	cis-1,3-Dichloropropene	10061-01-5	1	U	1	1
10371	trans-1,3-Dichloropropene	10061-02-6	0.6	U	0.6	1
10371	Ethylbenzene	100-41-4	2	J	0.8	1
10371	Methylene Chloride	75-09-2	2	U	2	1
10371	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	1
10371	Tetrachloroethene	127-18-4	1	U	1	1
10371	Toluene	108-88-3	0.8	U	0.8	1
10371	1,1,1-Trichloroethane	71-55-6	1	U	1	1
10371	1,1,2-Trichloroethane	79-00-5	1	U	1	1
10371	Trichloroethene	79-01-6	1	U	1	1
10371	Trichlorofluoromethane	75-69-4	2	U	2	1
10371	Vinyl Chloride	75-01-4	2	U	2	1
GC/MS Semivolatiles	**EPA 625**		ug/l		ug/l	
10334	Acenaphthene	83-32-9	0.3	U	0.3	1
10334	Acenaphthylene	208-96-8	0.3	U	0.3	1
10334	Anthracene	120-12-7	0.2	U	0.2	1
10334	Benzidine	92-87-5	19	U	19	1
10334	Benzo(a)anthracene	56-55-3	0.2	U	0.2	1
10334	Benzo(a)pyrene	50-32-8	0.3	U	0.3	1
10334	Benzo(b)fluoranthene	205-99-2	0.3	U	0.3	1
10334	Benzo(g,h,i)perylene	191-24-2	0.2	U	0.2	1
10334	Benzo(k)fluoranthene	207-08-9	0.3	U	0.3	1
10334	4-Bromophenyl-phenylether	101-55-3	0.3	U	0.3	1
10334	Butylbenzylphthalate	85-68-7	0.8	U	0.8	1
10334	Di-n-butylphthalate	84-74-2	0.6	J	0.5	1
10334	4-Chloro-3-methylphenol	59-50-7	0.3	U	0.3	1

DHR12 0013

Lancaster Laboratories

Sample Description: HGR-IDW-W1 Composite Water Sample
Dow Hanging Rock, OH

LLI Sample # WW 6503454
LLI Group # 1281639
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/16/2011 11:00 by BW

Submitted: 12/17/2011 09:45
Reported: 12/30/2011 16:10

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

-W1-- SDG#: DHR12-02

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Semivolatiles EPA 625			ug/l		ug/l	
10334	bis(2-Chloroethoxy)methane	111-91-1	0.5	U	0.5	1
10334	bis(2-Chloroethyl)ether	111-44-4	0.4	U	0.4	1
10334	bis(2-Chloroisopropyl)ether	39638-32-9	0.3	U	0.3	1
10334	2-Chloronaphthalene	91-58-7	0.2	U	0.2	1
10334	2-Chlorophenol	95-57-8	0.3	U	0.3	1
10334	4-Chlorophenyl-phenylether	7005-72-3	0.3	U	0.3	1
10334	Chrysene	218-01-9	0.2	U	0.2	1
10334	Dibenz(a,h)anthracene	53-70-3	0.4	U	0.4	1
10334	1,2-Dichlorobenzene	95-50-1	0.3	U	0.3	1
10334	1,3-Dichlorobenzene	541-73-1	0.3	U	0.3	1
10334	1,4-Dichlorobenzene	106-46-7	0.3	U	0.3	1
10334	3,3'-Dichlorobenzidine	91-94-1	0.8	U	0.8	1
10334	2,4-Dichlorophenol	120-83-2	0.3	U	0.3	1
10334	Diethylphthalate	84-66-2	0.4	J	0.3	1
10334	2,4-Dimethylphenol	105-67-9	0.3	U	0.3	1
10334	Dimethylphthalate	131-11-3	1	U	1	1
10334	4,6-Dinitro-2-methylphenol	534-52-1	4	U	4	1
10334	2,4-Dinitrophenol	51-28-5	10	U	10	1
10334	2,4-Dinitrotoluene	121-14-2	0.4	U	0.4	1
10334	2,6-Dinitrotoluene	606-20-2	0.3	U	0.3	1
10334	1,2-Diphenylhydrazine	122-66-7	0.2	U	0.2	1
10334	bis(2-Ethylhexyl)phthalate	117-81-7	6		1	1
10334	Fluoranthene	206-44-0	0.3	U	0.3	1
10334	Fluorene	86-73-7	0.3	U	0.3	1
10334	Hexachlorobenzene	118-74-1	1	U	1	1
10334	Hexachlorobutadiene	87-68-3	0.8	U	0.8	1
10334	Hexachlorocyclopentadiene	77-47-4	2	U	2	1
10334	Hexachloroethane	67-72-1	0.4	U	0.4	1
10334	Indeno(1,2,3-cd)pyrene	193-39-5	0.3	U	0.3	1
10334	Isophorone	78-59-1	0.3	U	0.3	1
10334	Naphthalene	91-20-3	0.2	U	0.2	1
10334	Nitrobenzene	98-95-3	0.5	U	0.5	1
10334	2-Nitrophenol	88-75-5	0.6	J	0.4	1
10334	4-Nitrophenol	100-02-7	5	U	5	1
10334	N-Nitrosodimethylamine	62-75-9	2	U	2	1
10334	N-Nitroso-di-n-propylamine	621-64-7	0.4	U	0.4	1
10334	N-Nitrosodiphenylamine	86-30-6	0.3	U	0.3	1
10334	Di-n-octylphthalate	117-84-0	0.5	U	0.5	1
10334	Pentachlorophenol	87-86-5	3	U	3	1
10334	Phenanthrene	85-01-8	0.3	J	0.2	1
10334	Phenol	108-95-2	0.4	U	0.4	1
10334	Pyrene	129-00-0	0.2	U	0.2	1
10334	1,2,4-Trichlorobenzene	120-82-1	0.3	U	0.3	1
10334	2,4,6-Trichlorophenol	88-06-2	0.7	U	0.7	1
Metals	**EPA 200.7 rev 4.4**		ug/l		ug/l	
07051	Chromium	7440-47-3	14.6	J	1.1	1
07053	Copper	7440-50-8	18.3		0.94	1
07055	Lead	7439-92-1	2.6	J	2.2	1
07061	Nickel	7440-02-0	11.2		0.95	1
07072	Zinc	7440-66-6	234		3.2	1

DHR12 0014

Lancaster Laboratories

Sample Description: HGR-IDW-W1 Composite Water Sample
Dow Hanging Rock, OH

LLI Sample # WW 6503454
LLI Group # 1281639
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/16/2011 11:00 by BW

Submitted: 12/17/2011 09:45
Reported: 12/30/2011 16:10

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

-W1-- SDG#: DHR12-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
Wet Chemistry	**EPA 335.4**		**mg/l**	**mg/l**	
00237	Total Cyanide (water)	57-12-5	0.0050 U	0.0050	1
	SM20 5310 C		**mg/l**	**mg/l**	
00273	Total Organic Carbon	n.a.	8.4	0.50	1
	EPA 1664A		**mg/l**	**mg/l**	
08079	HEM (oil & grease)	n.a.	1.4 U	1.4	1
	SM20 2540 D		**mg/l**	**mg/l**	
00206	Total Suspended Solids	n.a.	122	7.5	1
	SM20 5210 B		**mg/l**	**mg/l**	
00235	Biochemical Oxygen Demand	n.a.	5.6	0.80	1

The laboratory control sample analyzed on this sample's batch yielded a recovery of 77%. The method acceptance window is 85% to 115%. Because the 48-hour holding time had lapsed, BOD was not reanalyzed. The above result is reported with client consent.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10371	EPA 624 water	EPA 624	1	M113551AA	12/21/2011 21:32	Jason M Long	1
10334	Method 625	EPA 625	1	11355WAA625	12/23/2011 08:46	Holly Berry	1
08108	625 Water Extraction	EPA 625	1	11355WAA625	12/21/2011 18:00	Nicholas W Shroyer	1
07051	Chromium	EPA 200.7 rev 4.4	1	113555716003	12/28/2011 20:20	John W Yanzuk II	1
07053	Copper	EPA 200.7 rev 4.4	1	113555716003	12/28/2011 20:20	John W Yanzuk II	1
07055	Lead	EPA 200.7 rev 4.4	1	113555716003	12/30/2011 09:10	Joanne M Gates	1
07061	Nickel	EPA 200.7 rev 4.4	1	113555716003	12/28/2011 20:20	John W Yanzuk II	1
07072	Zinc	EPA 200.7 rev 4.4	1	113555716003	12/28/2011 20:20	John W Yanzuk II	1
05716	EPA 600 ICP Digest (tot rec)	EPA 200.7 rev 4.4	1	113555716003	12/22/2011 06:36	Denise K Conners	1
00237	Total Cyanide (water)	EPA 335.4	1	11355102101A	12/22/2011 11:34	Venia B McFadden	1
00273	Total Organic Carbon	SM20 5310 C	2	11356237301A	12/21/2011 22:12	Joseph E McKenzie	1
00492	Cyanide Water Distillation	EPA 335.4	1	11355102101A	12/21/2011 13:15	Carolyn M Mastropietro	1
08079	HEM (oil & grease)	EPA 1664A	1	11361807901A	12/27/2011 08:55	Kathryn J DeHaven	1
00206	Total Suspended Solids	SM20 2540 D	1	11354020601A	12/20/2011 14:13	Hannah M Royer	1
00235	Biochemical Oxygen Demand	SM20 5210 B	1	11351023501A	12/17/2011 11:31	Hannah M Royer	1

DHR12 0015

Lancaster Laboratories

Sample Description: HGR-IDW-S1 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6503455
LLI Group # 1281639
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/16/2011 11:11 by BW

Submitted: 12/17/2011 09:45
Reported: 12/30/2011 16:10

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

--S1- SDG#: DHR12-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	SW-846 8260B		ug/kg		ug/kg	
10949	Acetone	67-64-1	370	U	370	43.86
10949	Benzene	71-43-2	26	U	26	43.86
10949	Bromobenzene	108-86-1	53	U	53	43.86
10949	Bromochloromethane	74-97-5	53	U	53	43.86
10949	Bromodichloromethane	75-27-4	53	U	53	43.86
10949	Bromoform	75-25-2	53	U	53	43.86
10949	Bromomethane	74-83-9	110	U	110	43.86
10949	2-Butanone	78-93-3	210	U	210	43.86
10949	n-Butylbenzene	104-51-8	110	J	53	43.86
10949	sec-Butylbenzene	135-98-8	53	U	53	43.86
10949	tert-Butylbenzene	98-06-6	53	U	53	43.86
10949	Carbon Disulfide	75-15-0	53	U	53	43.86
10949	Carbon Tetrachloride	56-23-5	53	U	53	43.86
10949	Chlorobenzene	108-90-7	53	U	53	43.86
10949	Chloroethane	75-00-3	110	U	110	43.86
10949	Chloroform	67-66-3	53	U	53	43.86
10949	Chloromethane	74-87-3	110	U	110	43.86
10949	2-Chlorotoluene	95-49-8	53	U	53	43.86
10949	4-Chlorotoluene	106-43-4	53	U	53	43.86
10949	Cyclohexane	110-82-7	53	U	53	43.86
10949	1,2-Dibromo-3-chloropropane	96-12-8	110	U	110	43.86
10949	Dibromochloromethane	124-48-1	53	U	53	43.86
10949	1,2-Dibromoethane	106-93-4	53	U	53	43.86
10949	Dibromomethane	74-95-3	53	U	53	43.86
10949	1,2-Dichlorobenzene	95-50-1	53	U	53	43.86
10949	1,3-Dichlorobenzene	541-73-1	53	U	53	43.86
10949	1,4-Dichlorobenzene	106-46-7	53	U	53	43.86
10949	Dichlorodifluoromethane	75-71-8	110	U	110	43.86
10949	1,1-Dichloroethane	75-34-3	53	U	53	43.86
10949	1,2-Dichloroethane	107-06-2	53	U	53	43.86
10949	1,1-Dichloroethene	75-35-4	53	U	53	43.86
10949	cis-1,2-Dichloroethene	156-59-2	53	U	53	43.86
10949	trans-1,2-Dichloroethene	156-60-5	53	U	53	43.86
10949	1,2-Dichloropropane	78-87-5	53	U	53	43.86
10949	1,3-Dichloropropane	142-28-9	53	U	53	43.86
10949	2,2-Dichloropropane	594-20-7	53	U	53	43.86
10949	1,1-Dichloropropene	563-58-6	53	U	53	43.86
10949	cis-1,3-Dichloropropene	10061-01-5	53	U	53	43.86
10949	trans-1,3-Dichloropropene	10061-02-6	53	U	53	43.86
10949	Ethylbenzene	100-41-4	53	U	53	43.86
10949	Freon 113	76-13-1	110	U	110	43.86
10949	Hexachlorobutadiene	87-68-3	110	U	110	43.86
10949	2-Hexanone	591-78-6	160	U	160	43.86
10949	Isopropylbenzene	98-82-8	53	U	53	43.86
10949	p-Isopropyltoluene	99-87-6	53	U	53	43.86
10949	Methyl Acetate	79-20-9	150	J	110	43.86
10949	Methyl Tertiary Butyl Ether	1634-04-4	26	U	26	43.86
10949	4-Methyl-2-pentanone	108-10-1	160	U	160	43.86
10949	Methylcyclohexane	108-87-2	53	U	53	43.86
10949	Methylene Chloride	75-09-2	110	U	110	43.86
10949	Naphthalene	91-20-3	390		53	43.86

MAR 2 2012

Lancaster Laboratories

Sample Description: HGR-IDW-S1 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6503455
LLI Group # 1281639
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/16/2011 11:11 by BW

Submitted: 12/17/2011 09:45
Reported: 12/30/2011 16:10

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

--S1- SDG#: DHR12-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	53	U	53	43.86
10949	Styrene	100-42-5	53	U	53	43.86
10949	1,1,1,2-Tetrachloroethane	630-20-6	53	U	53	43.86
10949	1,1,2,2-Tetrachloroethane	79-34-5	53	U	53	43.86
10949	Tetrachloroethene	127-18-4	53	U	53	43.86
10949	Toluene	108-88-3	53	U	53	43.86
10949	1,2,3-Trichlorobenzene	87-61-6	53	U	53	43.86
10949	1,2,4-Trichlorobenzene	120-82-1	53	U	53	43.86
10949	1,1,1-Trichloroethane	71-55-6	53	U	53	43.86
10949	1,1,2-Trichloroethane	79-00-5	53	U	53	43.86
10949	Trichloroethene	79-01-6	53	U	53	43.86
10949	Trichlorofluoromethane	75-69-4	110	U	110	43.86
10949	1,2,3-Trichloropropane	96-18-4	53	U	53	43.86
10949	1,2,4-Trimethylbenzene	95-63-6	53	U	53	43.86
10949	1,3,5-Trimethylbenzene	108-67-8	53	U	53	43.86
10949	Vinyl Acetate	108-05-4	110	U	110	43.86
10949	Vinyl Chloride	75-01-4	53	U	53	43.86
10949	m+p-Xylene	179601-23-1	53	U	53	43.86
10949	o-Xylene	95-47-6	53	U	53	43.86
Trial ID: RE						
10949	Acetone	67-64-1	370	U	370	43.86
10949	Benzene	71-43-2	26	U	26	43.86
10949	Bromobenzene	108-86-1	53	U	53	43.86
10949	Bromochloromethane	74-97-5	53	U	53	43.86
10949	Bromodichloromethane	75-27-4	53	U	53	43.86
10949	Bromoform	75-25-2	53	U	53	43.86
10949	Bromomethane	74-83-9	110	U	110	43.86
10949	2-Butanone	78-93-3	210	U	210	43.86
10949	n-Butylbenzene	104-51-8	53	U	53	43.86
10949	sec-Butylbenzene	135-98-8	53	U	53	43.86
10949	tert-Butylbenzene	98-06-6	53	U	53	43.86
10949	Carbon Disulfide	75-15-0	53	U	53	43.86
10949	Carbon Tetrachloride	56-23-5	53	U	53	43.86
10949	Chlorobenzene	108-90-7	53	U	53	43.86
10949	Chloroethane	75-00-3	110	U	110	43.86
10949	Chloroform	67-66-3	53	U	53	43.86
10949	Chloromethane	74-87-3	110	U	110	43.86
10949	2-Chlorotoluene	95-49-8	53	U	53	43.86
10949	4-Chlorotoluene	106-43-4	53	U	53	43.86
10949	Cyclohexane	110-82-7	53	U	53	43.86
10949	1,2-Dibromo-3-chloropropane	96-12-8	110	U	110	43.86
10949	Dibromochloromethane	124-48-1	53	U	53	43.86
10949	1,2-Dibromoethane	106-93-4	53	U	53	43.86
10949	Dibromomethane	74-95-3	53	U	53	43.86
10949	1,2-Dichlorobenzene	95-50-1	53	U	53	43.86
10949	1,3-Dichlorobenzene	541-73-1	53	U	53	43.86
10949	1,4-Dichlorobenzene	106-46-7	82	J	53	43.86
10949	Dichlorodifluoromethane	75-71-8	110	U	110	43.86
10949	1,1-Dichloroethane	75-34-3	53	U	53	43.86
10949	1,2-Dichloroethane	107-06-2	53	U	53	43.86

DHR12 0017

Lancaster Laboratories

Sample Description: HGR-IDW-S1 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6503455
LLI Group # 1281639
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/16/2011 11:11 by BW

Submitted: 12/17/2011 09:45
Reported: 12/30/2011 16:10

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

--S1- SDG#: DHR12-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg		ug/kg	
10949	1,1-Dichloroethene	75-35-4	53	U	53	43.86
10949	cis-1,2-Dichloroethene	156-59-2	53	U	53	43.86
10949	trans-1,2-Dichloroethene	156-60-5	53	U	53	43.86
10949	1,2-Dichloropropane	78-87-5	53	U	53	43.86
10949	1,3-Dichloropropane	142-28-9	53	U	53	43.86
10949	2,2-Dichloropropane	594-20-7	53	U	53	43.86
10949	1,1-Dichloropropene	563-58-6	53	U	53	43.86
10949	cis-1,3-Dichloropropene	10061-01-5	53	U	53	43.86
10949	trans-1,3-Dichloropropene	10061-02-6	53	U	53	43.86
10949	Ethylbenzene	100-41-4	53	U	53	43.86
10949	Freon 113	76-13-1	110	U	110	43.86
10949	Hexachlorobutadiene	87-68-3	110	U	110	43.86
10949	2-Hexanone	591-78-6	160	U	160	43.86
10949	Isopropylbenzene	98-82-8	53	U	53	43.86
10949	p-Isopropyltoluene	99-87-6	53	U	53	43.86
10949	Methyl Acetate	79-20-9	130	J	110	43.86
10949	Methyl Tertiary Butyl Ether	1634-04-4	26	U	26	43.86
10949	4-Methyl-2-pentanone	108-10-1	160	U	160	43.86
10949	Methylcyclohexane	108-87-2	53	U	53	43.86
10949	Methylene Chloride	75-09-2	110	U	110	43.86
10949	Naphthalene	91-20-3	53	U	53	43.86
10949	n-Propylbenzene	103-65-1	53	U	53	43.86
10949	Styrene	100-42-5	53	U	53	43.86
10949	1,1,1,2-Tetrachloroethane	630-20-6	53	U	53	43.86
10949	1,1,2,2-Tetrachloroethane	79-34-5	53	U	53	43.86
10949	Tetrachloroethene	127-18-4	53	U	53	43.86
10949	Toluene	108-88-3	53	U	53	43.86
10949	1,2,3-Trichlorobenzene	87-61-6	53	U	53	43.86
10949	1,2,4-Trichlorobenzene	120-82-1	53	U	53	43.86
10949	1,1,1-Trichloroethane	71-55-6	53	U	53	43.86
10949	1,1,2-Trichloroethane	79-00-5	53	U	53	43.86
10949	Trichloroethene	79-01-6	53	U	53	43.86
10949	Trichlorofluoromethane	75-69-4	110	U	110	43.86
10949	1,2,3-Trichloropropane	96-18-4	53	U	53	43.86
10949	1,2,4-Trimethylbenzene	95-63-6	53	U	53	43.86
10949	1,3,5-Trimethylbenzene	108-67-8	53	U	53	43.86
10949	Vinyl Acetate	108-05-4	110	U	110	43.86
10949	Vinyl Chloride	75-01-4	53	U	53	43.86
10949	m+p-Xylene	179601-23-1	53	U	53	43.86
10949	o-Xylene	95-47-6	53	U	53	43.86

Reporting limits were raised due to interference from the sample matrix.

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 1,2,3-trichlorobenzene.

						DHR12 5816
GC/MS Semivolatiles	**SW-846 8270C**		ug/kg		ug/kg	
10727	Acenaphthene	83-32-9	5	J	4	1
10727	Acenaphthylene	208-96-8	4	U	4	1

Lancaster Laboratories

Sample Description: HGR-IDW-S1 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6503455
LLI Group # 1281639
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/16/2011 11:11 by BW

Submitted: 12/17/2011 09:45
Reported: 12/30/2011 16:10

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

--S1- SDG#: DHR12-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	SW-846 8270C		ug/kg		ug/kg	
10727	Anthracene	120-12-7	8	J	4	1
10727	Benzo(a)anthracene	56-55-3	40		4	1
10727	Benzo(a)pyrene	50-32-8	43		4	1
10727	Benzo(b)fluoranthene	205-99-2	66		4	1
10727	Benzo(g,h,i)perylene	191-24-2	43		4	1
10727	Benzo(k)fluoranthene	207-08-9	26		4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	20	U	20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	80	U	80	1
10727	Di-n-butylphthalate	84-74-2	80	U	80	1
10727	Carbazole	86-74-8	20	U	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	8	U	8	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	52		4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	20	U	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1
10727	Diethylphthalate	84-66-2	80	U	80	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	80	U	80	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1
10727	2,4-Dinitrophenol	51-28-5	400	U	400	1
10727	2,4-Dinitrotoluene	121-14-2	80	U	80	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	80	U	80	1
10727	Fluoranthene	206-44-0	94		4	1
10727	Fluorene	86-73-7	7	J	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	40	U	40	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	34		4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	5	J	4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	80	U	80	1
10727	4-Nitroaniline	100-01-6	80	U	80	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1

DHR12 0519

Lancaster Laboratories

Sample Description: HGR-IDW-S1 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6503455
LLI Group # 1281639
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/16/2011 11:11 by BW

Submitted: 12/17/2011 09:45
Reported: 12/30/2011 16:10

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

--S1- SDG#: DHR12-03

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	80	U	80	1
10727	Pentachlorophenol	87-86-5	40	U	40	1
10727	Phenanthrene	85-01-8	64		4	1
10727	Phenol	108-95-2	20	U	20	1
10727	Pyrene	129-00-0	84		4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
Wet Chemistry	**SM20 2540 G**		**%**		**%**	
00111	Moisture	n.a.	16.8		0.50	1
	"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.					

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	R113632AA	12/30/2011 02:15	Stephanie A Selis	43.86
10949	8260 Ext. Soil Master	SW-846 8260B	2	R113632AA	12/30/2011 06:36	Stephanie A Selis	43.86
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201135126470	12/17/2011 12:34	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201135126470	12/17/2011 12:34	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201135126470	12/17/2011 12:33	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11353SLC026	12/21/2011 11:59	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11353SLC026	12/20/2011 13:00	Olivia I Santiago	1
00111	Moisture	SM20 2540 G	1	11355820003B	12/21/2011 20:02	Scott W Freisher	1

DHR12 0028

Lancaster Laboratories, Inc.
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Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681

Lancaster Laboratories

Sample Description: HGR-IDW-S2 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6503456
LLI Group # 1281639
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/16/2011 11:30 by BW

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

Submitted: 12/17/2011 09:45
Reported: 12/30/2011 16:10

--S2- SDG#: DHR12-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	SW-846 8260B		ug/kg		ug/kg	
10949	Acetone	67-64-1	49		7	0.9
10949	Benzene	71-43-2	0.5	U	0.5	0.9
10949	Bromobenzene	108-86-1	1	U	1	0.9
10949	Bromochloromethane	74-97-5	1	U	1	0.9
10949	Bromodichloromethane	75-27-4	1	U	1	0.9
10949	Bromoform	75-25-2	1	U	1	0.9
10949	Bromomethane	74-83-9	2	U	2	0.9
10949	2-Butanone	78-93-3	6	J	4	0.9
10949	n-Butylbenzene	104-51-8	1	U	1	0.9
10949	sec-Butylbenzene	135-98-8	1	U	1	0.9
10949	tert-Butylbenzene	98-06-6	1	U	1	0.9
10949	Carbon Disulfide	75-15-0	1	U	1	0.9
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.9
10949	Chlorobenzene	108-90-7	1	U	1	0.9
10949	Chloroethane	75-00-3	2	U	2	0.9
10949	Chloroform	67-66-3	1	U	1	0.9
10949	Chloromethane	74-87-3	2	U	2	0.9
10949	2-Chlorotoluene	95-49-8	1	U	1	0.9
10949	4-Chlorotoluene	106-43-4	1	U	1	0.9
10949	Cyclohexane	110-82-7	1	U	1	0.9
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.9
10949	Dibromochloromethane	124-48-1	1	U	1	0.9
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.9
10949	Dibromomethane	74-95-3	1	U	1	0.9
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.9
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.9
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.9
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.9
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.9
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.9
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.9
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.9
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.9
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.9
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.9
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.9
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.9
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.9
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.9
10949	Ethylbenzene	100-41-4	46		1	0.9
10949	Freon 113	76-13-1	2	U	2	0.9
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.9
10949	2-Hexanone	591-78-6	3	U	3	0.9
10949	Isopropylbenzene	98-82-8	2	J	1	0.9
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.9
10949	Methyl Acetate	79-20-9	2	U	2	0.9
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.9
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.9
10949	Methylcyclohexane	108-87-2	1	U	1	0.9
10949	Methylene Chloride	75-09-2	2	U	2	0.9
10949	Naphthalene	91-20-3	1	U	1	0.9

DHR12 0021

Lancaster Laboratories, Inc.
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PO Box 12425
Lancaster, PA 17605-2425
717-656-2300 Fax: 717-656-2681

Lancaster Laboratories

Sample Description: HGR-IDW-S2 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6503456
LLI Group # 1281639
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/16/2011 11:30 by BW

Submitted: 12/17/2011 09:45
Reported: 12/30/2011 16:10

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

--S2- SDG#: DHR12-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	0.9
10949	Styrene	100-42-5	1	U	1	0.9
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.9
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.9
10949	Tetrachloroethene	127-18-4	1	U	1	0.9
10949	Toluene	108-88-3	1	U	1	0.9
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.9
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.9
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.9
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.9
10949	Trichloroethene	79-01-6	1	U	1	0.9
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.9
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.9
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.9
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.9
10949	Vinyl Acetate	108-05-4	2	U	2	0.9
10949	Vinyl Chloride	75-01-4	1	U	1	0.9
10949	m+p-Xylene	179601-23-1	1	U	1	0.9
10949	o-Xylene	95-47-6	1	U	1	0.9
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	9	J	4	1
10727	Acenaphthylene	208-96-8	5	J	4	1
10727	Anthracene	120-12-7	7	J	4	1
10727	Benzo(a)anthracene	56-55-3	20	J	4	1
10727	Benzo(a)pyrene	50-32-8	21		4	1
10727	Benzo(b)fluoranthene	205-99-2	29		4	1
10727	Benzo(g,h,i)perylene	191-24-2	22		4	1
10727	Benzo(k)fluoranthene	207-08-9	12	J	4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	280		20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	79	U	79	1
10727	Di-n-butylphthalate	84-74-2	79	U	79	1
10727	Carbazole	86-74-8	20	U	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	8	U	8	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	22		4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	20	U	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1
10727	Diethylphthalate	84-66-2	79	U	79	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1 DHR12 #822
10727	Dimethylphthalate	131-11-3	79	U	79	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1

Lancaster Laboratories

Sample Description: HGR-IDW-S2 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6503456
LLI Group # 1281639
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/16/2011 11:30 by BW

Submitted: 12/17/2011 09:45
Reported: 12/30/2011 16:10

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

--S2- SDG#: DHR12-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	390	U	390	1
10727	2,4-Dinitrotoluene	121-14-2	79	U	79	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	79	U	79	1
10727	Fluoranthene	206-44-0	50		4	1
10727	Fluorene	86-73-7	5	J	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	39	U	39	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	16	J	4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	10	J	4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	79	U	79	1
10727	4-Nitroaniline	100-01-6	79	U	79	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	79	U	79	1
10727	Pentachlorophenol	87-86-5	39	U	39	1
10727	Phenanthrene	85-01-8	55		4	1
10727	Phenol	108-95-2	20	U	20	1
10727	Pyrene	129-00-0	44		4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
Wet Chemistry	**SM20 2540 G**		**%**		**%**	
00111	Moisture	n.a.	15.5		0.50	1
	"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.					

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Lancaster Laboratories

Sample Description: HGR-IDW-S2 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6503456
LLI Group # 1281639
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/16/2011 11:30 by BW

Submitted: 12/17/2011 09:45
Reported: 12/30/2011 16:10

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

--S2- SDG#: DHR12-04

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113631AA	12/29/2011 15:40	Emily R Styer	0.9
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201135126470	12/17/2011 12:35	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201135126470	12/17/2011 12:36	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201135126470	12/17/2011 12:35	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11353SLC026	12/21/2011 12:24	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11353SLC026	12/20/2011 13:00	Olivia I Santiago	1
00111	Moisture	SM20 2540 G	1	113558200038	12/21/2011 20:02	Scott W Freisher	1

DHR12 0024

Lancaster Laboratories

Sample Description: HGR-IDW-S3 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6503457
LLI Group # 1281639
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/16/2011 11:45 by BW

Submitted: 12/17/2011 09:45
Reported: 12/30/2011 16:10

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

--S3- SDG#: DHR12-05*

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	SW-846 8260B		ug/kg		ug/kg	
10949	Acetone	67-64-1	45		8	0.88
10949	Benzene	71-43-2	0.5	U	0.5	0.88
10949	Bromobenzene	108-86-1	1	U	1	0.88
10949	Bromochloromethane	74-97-5	1	U	1	0.88
10949	Bromodichloromethane	75-27-4	1	U	1	0.88
10949	Bromoform	75-25-2	1	U	1	0.88
10949	Bromomethane	74-83-9	2	U	2	0.88
10949	2-Butanone	78-93-3	8	J	4	0.88
10949	n-Butylbenzene	104-51-8	1	U	1	0.88
10949	sec-Butylbenzene	135-98-8	1	U	1	0.88
10949	tert-Butylbenzene	98-06-6	1	U	1	0.88
10949	Carbon Disulfide	75-15-0	6		1	0.88
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.88
10949	Chlorobenzene	108-90-7	1	U	1	0.88
10949	Chloroethane	75-00-3	2	U	2	0.88
10949	Chloroform	67-66-3	1	U	1	0.88
10949	Chloromethane	74-87-3	2	U	2	0.88
10949	2-Chlorotoluene	95-49-8	1	U	1	0.88
10949	4-Chlorotoluene	106-43-4	1	U	1	0.88
10949	Cyclohexane	110-82-7	1	U	1	0.88
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.88
10949	Dibromochloromethane	124-48-1	1	U	1	0.88
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.88
10949	Dibromomethane	74-95-3	1	U	1	0.88
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.88
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.88
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.88
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.88
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.88
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.88
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.88
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.88
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.88
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.88
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.88
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.88
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.88
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.88
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.88
10949	Ethylbenzene	100-41-4	1	U	1	0.88
10949	Freon 113	76-13-1	2	U	2	0.88
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.88
10949	2-Hexanone	591-78-6	3	U	3	0.88
10949	Isopropylbenzene	98-82-8	2	U	1	0.88
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.88
10949	Methyl Acetate	79-20-9	2	U	2	0.88
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.88
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.88
10949	Methylcyclohexane	108-87-2	1	U	1	0.88
10949	Methylene Chloride	75-09-2	2	U	2	0.88
10949	Naphthalene	91-20-3	1	U	1	0.88

DHR12 0025

Lancaster Laboratories

Sample Description: HGR-IDW-S3 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6503457
LLI Group # 1281639
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/16/2011 11:45 by BW

Submitted: 12/17/2011 09:45
Reported: 12/30/2011 16:10

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

--S3- SDG#: DHR12-05*

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg		ug/kg	
10949	n-Propylbenzene	103-65-1	1	U	1	0.88
10949	Styrene	100-42-5	1	U	1	0.88
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.88
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.88
10949	Tetrachloroethene	127-18-4	30		1	0.88
10949	Toluene	108-88-3	1	U	1	0.88
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.88
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.88
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.88
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.88
10949	Trichloroethene	79-01-6	1	J	1	0.88
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.88
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.88
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.88
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.88
10949	Vinyl Acetate	108-05-4	2	U	2	0.88
10949	Vinyl Chloride	75-01-4	1	U	1	0.88
10949	m+p-Xylene	179601-23-1	1	U	1	0.88
10949	o-Xylene	95-47-6	1	U	1	0.88
GC/MS Semivolatiles	**SW-846 8270C**		ug/kg		ug/kg	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	6	J	4	1
10727	Anthracene	120-12-7	4	U	4	1
10727	Benzo(a)anthracene	56-55-3	12	J	4	1
10727	Benzo(a)pyrene	50-32-8	14	J	4	1
10727	Benzo(b)fluoranthene	205-99-2	20	J	4	1
10727	Benzo(g,h,i)perylene	191-24-2	17	J	4	1
10727	Benzo(k)fluoranthene	207-08-9	4	U	4	1
10727	Benzyl alcohol	100-51-6	210	U	210	1
10727	1,1'-Biphenyl	92-52-4	21	U	21	1
10727	4-Bromophenyl-phenylether	101-55-3	21	U	21	1
10727	Butylbenzylphthalate	85-68-7	83	U	83	1
10727	Di-n-butylphthalate	84-74-2	83	U	83	1
10727	Carbazole	86-74-8	21	U	21	1
10727	4-Chloro-3-methylphenol	59-50-7	21	U	21	1
10727	4-Chloroaniline	106-47-8	21	U	21	1
10727	bis(2-Chloroethoxy)methane	111-91-1	21	U	21	1
10727	bis(2-Chloroethyl)ether	111-44-4	21	U	21	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	21	U	21	1
10727	4-Chlorophenyl-phenylether	7005-72-3	21	U	21	1
10727	Chrysene	218-01-9	16	J	4	1
10727	Dibenz(a,h)anthracene	53-70-3	4	U	4	1
10727	Dibenzofuran	132-64-9	21	U	21	1
10727	3,3'-Dichlorobenzidine	91-94-1	130	U	130	1
10727	2,4-Dichlorophenol	120-83-2	21	U	21	1
10727	Diethylphthalate	84-66-2	83	U	83	1
10727	2,4-Dimethylphenol	105-67-9	21	U	21	1
10727	Dimethylphthalate	131-11-3	83	U	83	1
10727	4,6-Dinitro-2-methylphenol	534-52-1	210	U	210	1

DHR12 0824

Lancaster Laboratories

Sample Description: HGR-IDW-S3 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6503457
LLI Group # 1281639
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/16/2011 11:45 by BW

Submitted: 12/17/2011 09:45
Reported: 12/30/2011 16:10

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

--S3- SDG#: DHR12-05*

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	420	U	420	1
10727	2,4-Dinitrotoluene	121-14-2	83	U	83	1
10727	2,6-Dinitrotoluene	606-20-2	21	U	21	1
10727	1,4-Dioxane	123-91-1	130	U	130	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	83	U	83	1
10727	Fluoranthene	206-44-0	21	J	4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	210	U	210	1
10727	Hexachloroethane	67-72-1	42	U	42	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	11	J	4	1
10727	Isophorone	78-59-1	21	U	21	1
10727	2-Methylnaphthalene	91-57-6	22		4	1
10727	2-Methylphenol	95-48-7	21	U	21	1
10727	4-Methylphenol	106-44-5	21	U	21	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	21	U	21	1
10727	3-Nitroaniline	99-09-2	83	U	83	1
10727	4-Nitroaniline	100-01-6	83	U	83	1
10727	Nitrobenzene	98-95-3	21	U	21	1
10727	2-Nitrophenol	88-75-5	21	U	21	1
10727	4-Nitrophenol	100-02-7	210	U	210	1
10727	N-Nitroso-di-n-propylamine	621-64-7	21	U	21	1
10727	N-Nitrosodiphenylamine	86-30-6	21	U	21	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	83	U	83	1
10727	Pentachlorophenol	87-86-5	42	U	42	1
10727	Phenanthrene	85-01-8	22		4	1
10727	Phenol	108-95-2	21	U	21	1
10727	Pyrene	129-00-0	20	J	4	1
10727	2,4,5-Trichlorophenol	95-95-4	21	U	21	1
10727	2,4,6-Trichlorophenol	88-06-2	21	U	21	1
Wet Chemistry	**SM20 2540 G**		**%**		**%**	
00111	Moisture	n.a.	20.1		0.50	1
	"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.					

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

DHR12 0027

Lancaster Laboratories

Sample Description: HGR-IDW-S3 Composite Soil Sample
Dow Hanging Rock, OH

LLI Sample # SW 6503457
LLI Group # 1281639
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 12/16/2011 11:45 by BW

Submitted: 12/17/2011 09:45
Reported: 12/30/2011 16:10

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

--S3- SDG#: DHR12-05*

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	A113631AA	12/29/2011 16:03	Emily R Styer	0.88
08389	GC/MS - LL Encore Prep	SW-846 5035	1	201135126470	12/17/2011 12:38	Larry E Bevins	n.a.
08389	GC/MS - LL Encore Prep	SW-846 5035	2	201135126470	12/17/2011 12:38	Larry E Bevins	n.a.
07578	GC/MS-HL Encore Prep-NC	SW-846 5035	1	201135126470	12/17/2011 12:37	Larry E Bevins	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	11353SLC026	12/21/2011 12:48	Brian K Graham	1
10809	BNA Soil Microwave	SW-846 3546	1	11353SLC026	12/20/2011 13:00	Olivia I Santiago	1
00111	Moisture	SM20 2540 G	1	11355820003B	12/21/2011 20:02	Scott W Freisher	1

DHR12 0828

Volatiles by GC/MS Data

DHR12 0029

Case Narrative
Conformance/Nonconformance
Summary

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Case Narrative

CLIENT: CH2M Hill, Inc.
SDG: DHR12

GC/MS Volatiles

Fraction: Volatiles by GC/MS

EPA 624 water
8260 Ext. Soil Master

Sample #	Client ID	Matrix Liquid	Matrix Solid	DF	Comments
6503453	121611TB	X		1	Trip Blank
6503454	HGR-IDW-W1	X		1	
6503455	HGR-IDW-S1		X	43.86	
6503456	HGR-IDW-S2		X	0.9	
6503457	HGR-IDW-S3		X	0.88	

See QC Reference List for Associated Batch QC Samples

SAMPLE RECEIPT:

Samples were received in good condition and within temperature requirements.

HOLDING TIME:

All holding times were met.

PREPARATION/EXTRACTION/DIGESTION:

The weight for several samples was found to be outside the weight requirement when these samples were re-weighed at the laboratory. Please see the VOA Prep Summary sheets in the Preparations Log section for more information.

CALIBRATION/STANDARDIZATION:

All criteria were met.

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Case Narrative

CLIENT: CH2M Hill, Inc.
SDG: DHR12

GC/MS Volatiles

Fraction: Volatiles by GC/MS

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

LCS/LCSD

The % RPD for target analyte(s) in the Laboratory Control Spike/Spike Duplicate is outside the QC acceptance limits as noted on the QC Summary. Since the individual % recovery is within the acceptance limits, the data is reported.

Sample number: 6503455: The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 1,2,3-trichlorobenzene.

MS/MSD

Site specific matrix QC samples were not submitted for this SDG. The batch matrix QC was performed on samples from another project. Therefore the matrix effects would not be relevant and matrix QC is not provided in the data package. Laboratory spike data (LCS) are provided.

Surrogate

Surrogate recoveries that are noncompliant are confirmed unless attributed to a dilution or otherwise noted.

SAMPLE ANALYSIS:

No problems were encountered with the analysis of the samples.

DATA INTERPRETATION:

No further interpretation is necessary for the data submitted.

Sample number: 6503455: Reporting limits were raised due to interference from the sample matrix.

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Case Narrative

CLIENT: CH2M Hill, Inc.
SDG: DHR12

GC/MS Volatiles

Fraction: Volatiles by GC/MS

Abbreviation Key

UNSPK = Unspiked (for MS/MSD)	LOQ = Limit of Quantitation
MS = Matrix Spike	MDL = Method Detection Limit
MSD = Matrix Spike Duplicate	ND = Not Detected
BKG = Background (for Duplicate)	J = Estimated Value
D = Duplicate (DUP)	E= out of calibration range
LCS = Lab Control Sample	RE = Repreparation/Reanalysis
LCSD = Lab Control Sample Duplicate	* = Out of Specification

Narrative Reviewed and Approved 1/10/12 (Date) by Judi Brown

Judi Brown
Specialist

DHR12 0033

Quality Control and Calibration Summary Forms

DRR12 0034

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Quality Control Reference List
GC/MS Volatiles

CLIENT: CH2M Hill, Inc.
SDG: DHR12

Fraction: Volatiles by GC/MS

Analysis	Batch Number	Sample Number	Analysis Date
8260 Ext. Soil Master	A113631AA	VBLKA87	12/29/2011 11:28:00
		LCS1A87	12/29/2011 13:02:00
		LCSA87	12/29/2011 12:01:00
		LCD1A87	12/29/2011 13:24:00
		LCDA87	12/29/2011 12:26:00
		6503456	12/29/2011 15:40:00
		6503457	12/29/2011 16:03:00
8260 Ext. Soil Master	R113632AA	VBLKR63	12/29/2011 21:40:00
		LCS1R63	12/29/2011 22:49:00
		LCSR63	12/29/2011 22:03:00
		LCD1R63	12/29/2011 23:12:00
		LCDR63	12/29/2011 22:26:00
		6503455	12/30/2011 02:15:00
		6503455RE	12/30/2011 06:36:00
EPA 624 water	M113551AA	VBLKM77	12/21/2011 11:55:00
		LCSM77	12/21/2011 12:20:00
		LCDM77	12/21/2011 12:45:00
		6503453	12/21/2011 21:06:00
		6503454	12/21/2011 21:32:00

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LOQ/MDL Summary
GC/MS Volatiles

SDG: DHR12

Fraction: Volatiles by GC/MS

10949: 8260 Ext. Soil Master Analyte Name	Default MDL	Default LOQ	Units
Dichlorodifluoromethane	2	5	ug/kg
Chloromethane	2	5	ug/kg
Vinyl Chloride	1	5	ug/kg
Bromomethane	2	5	ug/kg
Chloroethane	2	5	ug/kg
Trichlorofluoromethane	2	5	ug/kg
1,1-Dichloroethene	1	5	ug/kg
Freon 113	2	10	ug/kg
Acetone	7	20	ug/kg
Carbon Disulfide	1	5	ug/kg
Methyl Acetate	2	5	ug/kg
Methylene Chloride	2	5	ug/kg
trans-1,2-Dichloroethene	1	5	ug/kg
Methyl Tertiary Butyl Ether	0.5	5	ug/kg
1,1-Dichloroethane	1	5	ug/kg
Vinyl Acetate	2	10	ug/kg
2-Butanone	4	10	ug/kg
cis-1,2-Dichloroethene	1	5	ug/kg
2,2-Dichloropropane	1	5	ug/kg
Bromochloromethane	1	5	ug/kg
Chloroform	1	5	ug/kg
1,1,1-Trichloroethane	1	5	ug/kg
Cyclohexane	1	5	ug/kg
1,1-Dichloropropene	1	5	ug/kg
Carbon Tetrachloride	1	5	ug/kg
Benzene	0.5	5	ug/kg
1,2-Dichloroethane	1	5	ug/kg
Trichloroethene	1	5	ug/kg
Methylcyclohexane	1	5	ug/kg
1,2-Dichloropropane	1	5	ug/kg
Dibromomethane	1	5	ug/kg
Bromodichloromethane	1	5	ug/kg
cis-1,3-Dichloropropene	1	5	ug/kg
4-Methyl-2-pentanone	3	10	ug/kg
Toluene	1	5	ug/kg
trans-1,3-Dichloropropene	1	5	ug/kg
1,1,2-Trichloroethane	1	5	ug/kg
Tetrachloroethene	1	5	ug/kg
1,3-Dichloropropane	1	5	ug/kg
2-Hexanone	3	10	ug/kg
Dibromochloromethane	1	5	ug/kg
1,2-Dibromoethane	1	5	ug/kg
Chlorobenzene	1	5	ug/kg
1,1,1,2-Tetrachloroethane	1	5	ug/kg
Ethylbenzene	1	5	ug/kg
m+p-Xylene	1	5	ug/kg
o-Xylene	1	5	ug/kg

Fraction: Volatiles by GC/MS

10949: 8260 Ext. Soil Master Analyte Name	Default MDL	Default LOQ	Units
Styrene	1	5	ug/kg
Bromoform	1	5	ug/kg
Isopropylbenzene	1	5	ug/kg
1,1,2,2-Tetrachloroethane	1	5	ug/kg
Bromobenzene	1	5	ug/kg
1,2,3-Trichloropropane	1	5	ug/kg
n-Propylbenzene	1	5	ug/kg
2-Chlorotoluene	1	5	ug/kg
1,3,5-Trimethylbenzene	1	5	ug/kg
4-Chlorotoluene	1	5	ug/kg
tert-Butylbenzene	1	5	ug/kg
1,2,4-Trimethylbenzene	1	5	ug/kg
sec-Butylbenzene	1	5	ug/kg
1,3-Dichlorobenzene	1	5	ug/kg
p-Isopropyltoluene	1	5	ug/kg
1,4-Dichlorobenzene	1	5	ug/kg
n-Butylbenzene	1	5	ug/kg
1,2-Dichlorobenzene	1	5	ug/kg
1,2-Dibromo-3-chloropropane	2	5	ug/kg
1,2,4-Trichlorobenzene	1	5	ug/kg
Hexachlorobutadiene	2	5	ug/kg
Naphthalene	1	5	ug/kg
1,2,3-Trichlorobenzene	1	5	ug/kg

10371: EPA 624 water Analyte Name	Default MDL	Default LOQ	Units
Chloromethane	2	5	ug/l
Vinyl Chloride	2	5	ug/l
Bromomethane	2	5	ug/l
Chloroethane	2	5	ug/l
Trichlorofluoromethane	2	5	ug/l
Acrolein	10	50	ug/l
1,1-Dichloroethene	0.9	5	ug/l
Methylene Chloride	2	5	ug/l
Acrylonitrile	10	50	ug/l
trans-1,2-Dichloroethene	1	5	ug/l
1,1-Dichloroethane	1	5	ug/l
cis-1,2-Dichloroethene	1	5	ug/l
Chloroform	1	5	ug/l
1,1,1-Trichloroethane	1	5	ug/l
Carbon Tetrachloride	1	5	ug/l
Benzene	0.9	5	ug/l
1,2-Dichloroethane	1	5	ug/l
Trichloroethene	1	5	ug/l
1,2-Dichloropropane	1	5	ug/l
Bromodichloromethane	0.7	5	ug/l
2-Chloroethyl Vinyl Ether	2	10	ug/l

Fraction: Volatiles by GC/MS

10371: EPA 624 water Analyte Name	Default MDL	Default LOQ	Units
cis-1,3-Dichloropropene	1	5	ug/l
Toluene	0.8	5	ug/l
trans-1,3-Dichloropropene	0.6	5	ug/l
1,1,2-Trichloroethane	1	5	ug/l
Tetrachloroethene	1	5	ug/l
Dibromochloromethane	1	5	ug/l
Chlorobenzene	0.8	5	ug/l
Ethylbenzene	0.8	5	ug/l
Bromoform	0.8	5	ug/l
1,1,2,2-Tetrachloroethane	1	5	ug/l
1,3-Dichlorobenzene	1	5	ug/l
1,4-Dichlorobenzene	1	5	ug/l
1,2-Dichlorobenzene	1	5	ug/l

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Quality Control Summary
Method Blank
GC/MS Volatiles
SDG: DHR12
Matrix: SOLID

Fraction: Volatiles by GC/MS

A113631AA / VBLKA87 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Dichlorodifluoromethane	12/29/11	N.D.	ug/kg	2	5
Chloromethane	12/29/11	N.D.	ug/kg	2	5
Vinyl Chloride	12/29/11	N.D.	ug/kg	1	5
Bromomethane	12/29/11	N.D.	ug/kg	2	5
Chloroethane	12/29/11	N.D.	ug/kg	2	5
Trichlorofluoromethane	12/29/11	N.D.	ug/kg	2	5
1,1-Dichloroethene	12/29/11	N.D.	ug/kg	1	5
Acetone	12/29/11	N.D.	ug/kg	7	20
Carbon Disulfide	12/29/11	N.D.	ug/kg	1	5
Freon 113	12/29/11	N.D.	ug/kg	2	10
Methyl Acetate	12/29/11	N.D.	ug/kg	2	5
Benzene	12/29/11	N.D.	ug/kg	0.5	5
Bromochloromethane	12/29/11	N.D.	ug/kg	1	5
Bromodichloromethane	12/29/11	N.D.	ug/kg	1	5
2-Butanone	12/29/11	N.D.	ug/kg	4	10
Carbon Tetrachloride	12/29/11	N.D.	ug/kg	1	5
Chloroform	12/29/11	N.D.	ug/kg	1	5
Cyclohexane	12/29/11	N.D.	ug/kg	1	5
Dibromomethane	12/29/11	N.D.	ug/kg	1	5
1,1-Dichloroethane	12/29/11	N.D.	ug/kg	1	5
1,2-Dichloroethane	12/29/11	N.D.	ug/kg	1	5
cis-1,2-Dichloroethene	12/29/11	N.D.	ug/kg	1	5
trans-1,2-Dichloroethene	12/29/11	N.D.	ug/kg	1	5
1,2-Dichloropropane	12/29/11	N.D.	ug/kg	1	5
2,2-Dichloropropane	12/29/11	N.D.	ug/kg	1	5
1,1-Dichloropropene	12/29/11	N.D.	ug/kg	1	5
cis-1,3-Dichloropropene	12/29/11	N.D.	ug/kg	1	5
Methyl Tertiary Butyl Ether	12/29/11	N.D.	ug/kg	0.5	5
4-Methyl-2-pentanone	12/29/11	N.D.	ug/kg	3	10
Methylcyclohexane	12/29/11	N.D.	ug/kg	1	5
Methylene Chloride	12/29/11	N.D.	ug/kg	2	5
Toluene	12/29/11	N.D.	ug/kg	1	5
1,1,1-Trichloroethane	12/29/11	N.D.	ug/kg	1	5
Trichloroethene	12/29/11	N.D.	ug/kg	1	5
Vinyl Acetate	12/29/11	N.D.	ug/kg	2	10
Bromobenzene	12/29/11	N.D.	ug/kg	1	5
Bromoform	12/29/11	N.D.	ug/kg	1	5
n-Butylbenzene	12/29/11	N.D.	ug/kg	1	5
sec-Butylbenzene	12/29/11	N.D.	ug/kg	1	5
tert-Butylbenzene	12/29/11	N.D.	ug/kg	1	5
Chlorobenzene	12/29/11	N.D.	ug/kg	1	5
2-Chlorotoluene	12/29/11	N.D.	ug/kg	1	5
4-Chlorotoluene	12/29/11	N.D.	ug/kg	1	5
1,2-Dibromo-3-chloropropane	12/29/11	N.D.	ug/kg	2	5
Dibromochloromethane	12/29/11	N.D.	ug/kg	1	5

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Fraction: Volatiles by GC/MS

A113631AA / VBLKA87 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
1,2-Dibromoethane	12/29/11	N.D.	ug/kg	1	5
1,2-Dichlorobenzene	12/29/11	N.D.	ug/kg	1	5
1,3-Dichlorobenzene	12/29/11	N.D.	ug/kg	1	5
1,4-Dichlorobenzene	12/29/11	N.D.	ug/kg	1	5
1,3-Dichloropropane	12/29/11	N.D.	ug/kg	1	5
trans-1,3-Dichloropropene	12/29/11	N.D.	ug/kg	1	5
Ethylbenzene	12/29/11	N.D.	ug/kg	1	5
2-Hexanone	12/29/11	N.D.	ug/kg	3	10
Isopropylbenzene	12/29/11	N.D.	ug/kg	1	5
p-Isopropyltoluene	12/29/11	N.D.	ug/kg	1	5
n-Propylbenzene	12/29/11	N.D.	ug/kg	1	5
Styrene	12/29/11	N.D.	ug/kg	1	5
1,1,1,2-Tetrachloroethane	12/29/11	N.D.	ug/kg	1	5
1,1,2,2-Tetrachloroethane	12/29/11	N.D.	ug/kg	1	5
Tetrachloroethene	12/29/11	N.D.	ug/kg	1	5
1,1,2-Trichloroethane	12/29/11	N.D.	ug/kg	1	5
1,2,3-Trichloropropane	12/29/11	N.D.	ug/kg	1	5
1,2,4-Trimethylbenzene	12/29/11	N.D.	ug/kg	1	5
1,3,5-Trimethylbenzene	12/29/11	N.D.	ug/kg	1	5
m+p-Xylene	12/29/11	N.D.	ug/kg	1	5
o-Xylene	12/29/11	N.D.	ug/kg	1	5
Hexachlorobutadiene	12/29/11	N.D.	ug/kg	2	5
Naphthalene	12/29/11	N.D.	ug/kg	1	5
1,2,3-Trichlorobenzene	12/29/11	N.D.	ug/kg	1	5
1,2,4-Trichlorobenzene	12/29/11	N.D.	ug/kg	1	5

R113632AA / VBLKR63 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Dichlorodifluoromethane	12/29/11	N.D.	ug/kg	100	250
Chloromethane	12/29/11	N.D.	ug/kg	100	250
Vinyl Chloride	12/29/11	N.D.	ug/kg	50	250
Bromomethane	12/29/11	N.D.	ug/kg	100	250
Chloroethane	12/29/11	N.D.	ug/kg	100	250
Trichlorofluoromethane	12/29/11	N.D.	ug/kg	100	250
1,1-Dichloroethene	12/29/11	N.D.	ug/kg	50	250
Acetone	12/29/11	N.D.	ug/kg	350	1000
Carbon Disulfide	12/29/11	N.D.	ug/kg	50	250
Freon 113	12/29/11	N.D.	ug/kg	100	500
Methyl Acetate	12/29/11	N.D.	ug/kg	100	250
Benzene	12/29/11	N.D.	ug/kg	25	250
Bromochloromethane	12/29/11	N.D.	ug/kg	50	250
Bromodichloromethane	12/29/11	N.D.	ug/kg	50	250
2-Butanone	12/29/11	N.D.	ug/kg	200	500
Carbon Tetrachloride	12/29/11	N.D.	ug/kg	50	250
Chloroform	12/29/11	N.D.	ug/kg	50	250

Fraction: Volatiles by GC/MS

R113632AA / VBLKR63 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Cyclohexane	12/29/11	N.D.	ug/kg	50	250
Dibromomethane	12/29/11	N.D.	ug/kg	50	250
1,1-Dichloroethane	12/29/11	N.D.	ug/kg	50	250
1,2-Dichloroethane	12/29/11	N.D.	ug/kg	50	250
cis-1,2-Dichloroethene	12/29/11	N.D.	ug/kg	50	250
trans-1,2-Dichloroethene	12/29/11	N.D.	ug/kg	50	250
1,2-Dichloropropane	12/29/11	N.D.	ug/kg	50	250
2,2-Dichloropropane	12/29/11	N.D.	ug/kg	50	250
1,1-Dichloropropene	12/29/11	N.D.	ug/kg	50	250
cis-1,3-Dichloropropene	12/29/11	N.D.	ug/kg	50	250
Methyl Tertiary Butyl Ether	12/29/11	N.D.	ug/kg	25	250
4-Methyl-2-pentanone	12/29/11	N.D.	ug/kg	150	500
Methylcyclohexane	12/29/11	N.D.	ug/kg	50	250
Methylene Chloride	12/29/11	N.D.	ug/kg	100	250
Toluene	12/29/11	N.D.	ug/kg	50	250
1,1,1-Trichloroethane	12/29/11	N.D.	ug/kg	50	250
Trichloroethene	12/29/11	N.D.	ug/kg	50	250
Vinyl Acetate	12/29/11	N.D.	ug/kg	100	500
Bromobenzene	12/29/11	N.D.	ug/kg	50	250
Bromoform	12/29/11	N.D.	ug/kg	50	250
n-Butylbenzene	12/29/11	N.D.	ug/kg	50	250
sec-Butylbenzene	12/29/11	N.D.	ug/kg	50	250
tert-Butylbenzene	12/29/11	N.D.	ug/kg	50	250
Chlorobenzene	12/29/11	N.D.	ug/kg	50	250
2-Chlorotoluene	12/29/11	N.D.	ug/kg	50	250
4-Chlorotoluene	12/29/11	N.D.	ug/kg	50	250
1,2-Dibromo-3-chloropropane	12/29/11	N.D.	ug/kg	100	250
Dibromochloromethane	12/29/11	N.D.	ug/kg	50	250
1,2-Dibromoethane	12/29/11	N.D.	ug/kg	50	250
1,2-Dichlorobenzene	12/29/11	N.D.	ug/kg	50	250
1,3-Dichlorobenzene	12/29/11	N.D.	ug/kg	50	250
1,4-Dichlorobenzene	12/29/11	N.D.	ug/kg	50	250
1,3-Dichloropropane	12/29/11	N.D.	ug/kg	50	250
trans-1,3-Dichloropropene	12/29/11	N.D.	ug/kg	50	250
Ethylbenzene	12/29/11	N.D.	ug/kg	50	250
2-Hexanone	12/29/11	N.D.	ug/kg	150	500
Isopropylbenzene	12/29/11	N.D.	ug/kg	50	250
p-Isopropyltoluene	12/29/11	N.D.	ug/kg	50	250
n-Propylbenzene	12/29/11	N.D.	ug/kg	50	250
Styrene	12/29/11	N.D.	ug/kg	50	250
1,1,1,2-Tetrachloroethane	12/29/11	N.D.	ug/kg	50	250
1,1,2,2-Tetrachloroethane	12/29/11	N.D.	ug/kg	50	250
Tetrachloroethene	12/29/11	N.D.	ug/kg	50	250
1,1,2-Trichloroethane	12/29/11	N.D.	ug/kg	50	250
1,2,3-Trichloropropane	12/29/11	N.D.	ug/kg	50	250

Fraction: Volatiles by GC/MS

R113632AA / VBLKR63 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
1,2,4-Trimethylbenzene	12/29/11	N.D.	ug/kg	50	250
1,3,5-Trimethylbenzene	12/29/11	N.D.	ug/kg	50	250
m+p-Xylene	12/29/11	N.D.	ug/kg	50	250
o-Xylene	12/29/11	N.D.	ug/kg	50	250
Hexachlorobutadiene	12/29/11	N.D.	ug/kg	100	250
Naphthalene	12/29/11	N.D.	ug/kg	50	250
1,2,3-Trichlorobenzene	12/29/11	N.D.	ug/kg	50	250
1,2,4-Trichlorobenzene	12/29/11	N.D.	ug/kg	50	250

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Quality Control Summary
Method Blank
GC/MS Volatiles
SDG: DHR12
Matrix: LIQUID

Fraction: Volatiles by GC/MS

M113551AA / VBLKM77 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Chloromethane	12/21/11	N.D.	ug/l	2	5
Vinyl Chloride	12/21/11	N.D.	ug/l	2	5
Bromomethane	12/21/11	N.D.	ug/l	2	5
Chloroethane	12/21/11	N.D.	ug/l	2	5
Trichlorofluoromethane	12/21/11	N.D.	ug/l	2	5
Acrolein	12/21/11	N.D.	ug/l	10	50
1,1-Dichloroethene	12/21/11	N.D.	ug/l	0.9	5
Methylene Chloride	12/21/11	N.D.	ug/l	2	5
Acrylonitrile	12/21/11	N.D.	ug/l	10	50
trans-1,2-Dichloroethene	12/21/11	N.D.	ug/l	1	5
1,1-Dichloroethane	12/21/11	N.D.	ug/l	1	5
cis-1,2-Dichloroethene	12/21/11	N.D.	ug/l	1	5
Chloroform	12/21/11	N.D.	ug/l	1	5
1,1,1-Trichloroethane	12/21/11	N.D.	ug/l	1	5
Carbon Tetrachloride	12/21/11	N.D.	ug/l	1	5
Benzene	12/21/11	N.D.	ug/l	0.9	5
1,2-Dichloroethane	12/21/11	N.D.	ug/l	1	5
Trichloroethene	12/21/11	N.D.	ug/l	1	5
1,2-Dichloropropane	12/21/11	N.D.	ug/l	1	5
Bromodichloromethane	12/21/11	N.D.	ug/l	0.7	5
2-Chloroethyl Vinyl Ether	12/21/11	N.D.	ug/l	2	10
cis-1,3-Dichloropropene	12/21/11	N.D.	ug/l	1	5
Toluene	12/21/11	N.D.	ug/l	0.8	5
trans-1,3-Dichloropropene	12/21/11	N.D.	ug/l	0.6	5
1,1,2-Trichloroethane	12/21/11	N.D.	ug/l	1	5
Tetrachloroethene	12/21/11	N.D.	ug/l	1	5
Dibromochloromethane	12/21/11	N.D.	ug/l	1	5
Chlorobenzene	12/21/11	N.D.	ug/l	0.8	5
Ethylbenzene	12/21/11	N.D.	ug/l	0.8	5
Bromoform	12/21/11	N.D.	ug/l	0.8	5
1,1,2,2-Tetrachloroethane	12/21/11	N.D.	ug/l	1	5
1,3-Dichlorobenzene	12/21/11	N.D.	ug/l	1	5
1,4-Dichlorobenzene	12/21/11	N.D.	ug/l	1	5
1,2-Dichlorobenzene	12/21/11	N.D.	ug/l	1	5

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Quality Control Summary
Surrogates
GC/MS Volatiles
SDG: DHR12
Matrix: SOLID

Fraction: Volatiles by GC/MS

A113631AA	Dibromofluoromethane		1,2-Dichloroethane-d4		Toluene-d8		4-Bromofluorobenzene	
	Spike Added	50 ug/kg	Spike Added	50 ug/kg	Spike Added	50 ug/kg	Spike Added	50 ug/kg
Sample	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits
VBLKA87	102	71 - 114	102	70 - 109	102	70 - 123	93	70 - 111
LCSA87	101	71 - 114	100	70 - 109	106	70 - 123	99	70 - 111
LCDA87	100	71 - 114	98	70 - 109	106	70 - 123	99	70 - 111
6503456	100	71 - 114	101	70 - 109	104	70 - 123	94	70 - 111
6503457	100	71 - 114	99	70 - 109	105	70 - 123	92	70 - 111

R113632AA	Dibromofluoromethane		1,2-Dichloroethane-d4		Toluene-d8		4-Bromofluorobenzene	
	Spike Added	50 ug/kg	Spike Added	50 ug/kg	Spike Added	50 ug/kg	Spike Added	50 ug/kg
Sample	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits
VBLKR63	92	71 - 114	97	70 - 109	84	70 - 123	75	70 - 111
LCSR63	95	71 - 114	96	70 - 109	89	70 - 123	77	70 - 111
LCDR63	95	71 - 114	97	70 - 109	88	70 - 123	78	70 - 111
6503455	76	71 - 114	80	70 - 109	76	70 - 123	69 *	70 - 111
6503455RE	78	71 - 114	83	70 - 109	78	70 - 123	68 *	70 - 111

Surrogate recoveries that are noncompliant are confirmed unless attributed to a dilution or otherwise noted.

DHR12 6044

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Quality Control Summary
Surrogates
GC/MS Volatiles
SDG: DHR12
Matrix: LIQUID

Fraction: Volatiles by GC/MS

M113551AA	1,2-Dichloroethane-d4		Fluorobenzene		4-Bromofluorobenzene	
	Spike Added	30 ug/l	Spike Added	30 ug/l	Spike Added	30 ug/l
Sample	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits
VBLKM77	80	76 - 114	105	80 - 120	93	86 - 115
LCSM77	82	76 - 114	105	80 - 120	97	86 - 115
LCDM77	81	76 - 114	105	80 - 120	96	86 - 115
6503453	80	76 - 114	103	80 - 120	93	86 - 115
6503454	83	76 - 114	105	80 - 120	93	86 - 115

DHS12 0845

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: DHR12
Matrix: SOLID

GC/MS Volatiles

Fraction: Volatiles by GC/MS

LCS: LCS1A87 LCSD: LCD1A87	Batch: **A113631AA** (Sample number(s): 6503456-6503457)							
Analyte	**Spike Added ug/kg**	**LCS Conc ug/kg**	**LCSD Conc ug/kg**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Vinyl Acetate	100	99.65	96.55	100	97	56-137	3	30

LCS: LCSA87 LCSD: LCDA87	Batch: **A113631AA** (Sample number(s): 6503456-6503457)							
Analyte	**Spike Added ug/kg**	**LCS Conc ug/kg**	**LCSD Conc ug/kg**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Dichlorodifluoromethane	20	16.19	15.99	81	80	20-120	1	30
Chloromethane	20	16.26	16.07	81	80	54-132	1	30
Vinyl Chloride	20	16.54	16.31	83	82	53-120	1	30
Bromomethane	20	18.85	18.31	94	92	32-162	3	30
Chloroethane	20	18.11	17.4	91	87	37-154	4	30
Trichlorofluoromethane	20	22.03	21.14	110	106	58-133	4	30
1,1-Dichloroethene	20	17.77	17.96	89	90	73-123	1	30
Acetone	150	152.8	127.87	102	85	32-209	18	30
Carbon Disulfide	20	17.01	17.08	85	85	67-122	0	30
Freon 113	20	18.59	18.39	93	92	61-126	1	30
Methyl Acetate	20	24.7	21.58	124	108	61-152	13	30
1,1,1-Trichloroethane	20	20.06	19.3	100	96	71-125	4	30
1,1-Dichloroethane	20	19.79	19.66	99	98	80-120	1	30
1,1-Dichloropropene	20	19.11	18.96	96	95	77-120	1	30
1,2-Dichloroethane	20	22.36	21.52	112	108	71-129	4	30
1,2-Dichloropropane	20	18.1	17.57	90	88	80-120	3	30
2,2-Dichloropropane	20	18.99	18.65	95	93	72-123	2	30
2-Butanone	150	173.77	149.59	116	100	46-153	15	30
4-Methyl-2-pentanone	100	114.59	99.16	115	99	61-134	14	30
Benzene	20	18.44	18.27	92	91	80-120	1	30
Bromochloromethane	20	18.84	18.32	94	92	79-124	3	30
Bromodichloromethane	20	18.58	17.95	93	90	78-120	3	30
Carbon Tetrachloride	20	19.42	18.76	97	94	69-122	3	30
Chloroform	20	19.58	19.06	98	95	80-120	3	30
cis-1,2-Dichloroethene	20	17.89	17.78	89	89	80-120	1	30
cis-1,3-Dichloropropene	20	17.39	16.9	87	84	80-120	3	30
Cyclohexane	20	19.13	18.86	96	94	62-121	1	30
Dibromomethane	20	18.27	17.32	91	87	80-120	5	30
Methyl Tertiary Butyl Ether	20	19.57	19	98	95	74-121	3	30
Methylcyclohexane	20	19.68	19.25	98	96	57-138	2	30
Methylene Chloride	20	17.66	17.73	88	89	76-124	0	30
Toluene	20	19.24	19.12	96	96	80-120	1	30
trans-1,2-Dichloroethene	20	18.2	17.83	91	89	79-120	2	30
Trichloroethene	20	18.46	17.71	92	89	80-120	4	30
1,1,1,2-Tetrachloroethane	20	19.4	19.34	97	97	80-120	0	30
1,1,2,2-Tetrachloroethane	20	18.84	17.32	94	87	71-123	8	30

GC/MS Volatiles

Fraction: Volatiles by GC/MS

LCS: LCSA87 LCSD: LCDA87 Analyte	Batch: **A113631AA** (Sample number(s): 6503456-6503457) Spike Added ug/kg	LCS Conc ug/kg	LCSD Conc ug/kg	LCS %Rec	LCSD %Rec	%Rec Limits	%RPD	%RPD Limits
1,1,2-Trichloroethane	20	19.27	18.17	96	91	80-120	6	30
1,2,3-Trichloropropane	20	20.01	17.86	100	89	71-123	11	30
1,2,4-Trimethylbenzene	20	20.03	20.23	100	101	79-120	1	30
1,2-Dibromo-3-chloropropane	20	21.66	18.85	108	94	58-120	14	30
1,2-Dibromoethane	20	19.92	18.69	100	93	80-120	6	30
1,2-Dichlorobenzene	20	19.17	19.22	96	96	79-120	0	30
1,3,5-Trimethylbenzene	20	20.46	20.45	102	102	78-120	0	30
1,3-Dichlorobenzene	20	19.76	19.68	99	98	78-120	0	30
1,3-Dichloropropane	20	19.85	19.14	99	96	80-120	4	30
1,4-Dichlorobenzene	20	19.62	19.42	98	97	79-120	1	30
2-Chlorotoluene	20	18.93	19.1	95	96	78-120	1	30
2-Hexanone	100	107.17	92.97	107	93	45-155	14	30
4-Chlorotoluene	20	19.52	19.72	98	99	79-120	1	30
Bromobenzene	20	19.75	19.5	99	98	79-120	1	30
Bromoform	20	18.97	17.69	95	88	70-120	7	30
Chlorobenzene	20	19.37	19.24	97	96	80-120	1	30
Dibromochloromethane	20	18.92	18.19	95	91	77-120	4	30
Ethylbenzene	20	19.94	20	100	100	80-120	0	30
Isopropylbenzene	20	20.6	20.34	103	102	76-120	1	30
m+p-Xylene	40	39.35	39.09	98	98	80-120	1	30
n-Butylbenzene	20	19.66	19.65	98	98	72-120	0	30
n-Propylbenzene	20	20.51	20.57	103	103	77-120	0	30
o-Xylene	20	19.14	18.98	96	95	80-120	1	30
p-Isopropyltoluene	20	20.5	20.42	102	102	75-120	0	30
sec-Butylbenzene	20	20.32	20.34	102	102	75-120	0	30
Styrene	20	20.01	19.74	100	99	76-120	1	30
tert-Butylbenzene	20	19.58	19.47	98	97	75-120	1	30
Tetrachloroethene	20	20.26	20.07	101	100	77-120	1	30
trans-1.3-Dichloropropene	20	18.95	18.66	95	93	77-120	2	30
1,2,3-Trichlorobenzene	20	19.84	19.68	99	98	64-120	1	30
1,2,4-Trichlorobenzene	20	18.73	19.09	94	95	68-120	2	30
Hexachlorobutadiene	20	20.32	20.46	102	102	57-120	1	30
Naphthalene	20	19.75	18.75	99	94	59-123	5	30

LCS: LCS1R63 LCSD: LCD1R63 Analyte	Batch: **R113632AA** (Sample number(s): 6503455) Spike Added ug/kg	LCS Conc ug/kg	LCSD Conc ug/kg	LCS %Rec	LCSD %Rec	%Rec Limits	%RPD	%RPD Limits
Vinyl Acetate	5000	5231.42	5169.87	105	103	56-137	1	30

GC/MS Volatiles

Fraction: Volatiles by GC/MS

LCS: LCSR63 LCSD: LCDR63 Analyte	Batch: **R113632AA** (Sample number(s): 6503455)							
	Spike Added ug/kg	LCS Conc ug/kg	LCSD Conc ug/kg	LCS %Rec	LCSD %Rec	%Rec Limits	%RPD	%RPD Limits
Dichlorodifluoromethane	1000	520.93	436.09	52	44	20-120	18	30
Chloromethane	1000	817.1	773.26	82	77	54-132	6	30
Vinyl Chloride	1000	835.57	762.31	84	76	53-120	9	30
Bromomethane	1000	781.01	751.25	78	75	32-162	4	30
Chloroethane	1000	1241.39	797.74	124	80	37-154	44 *	30
Trichlorofluoromethane	1000	752.04	668.76	75	67	58-133	12	30
1,1-Dichloroethene	1000	1053.56	1039.36	105	104	73-123	1	30
Acetone	7500	5516.65	5835.68	74	78	32-209	6	30
Carbon Disulfide	1000	1008.08	1005.18	101	101	67-122	0	30
Freon 113	1000	945.02	919.62	95	92	61-126	3	30
Methyl Acetate	1000	1181.49	1175.42	118	118	61-152	1	30
1,1,1-Trichloroethane	1000	921.01	932.12	92	93	71-125	1	30
1,1-Dichloroethane	1000	1013.48	1034.18	101	103	80-120	2	30
1,1-Dichloropropene	1000	955.99	934.76	96	93	77-120	2	30
1,2-Dichloroethane	1000	929.14	960.43	93	96	71-129	3	30
1,2-Dichloropropane	1000	1038.7	1065.72	104	107	80-120	3	30
2,2-Dichloropropane	1000	927.75	929.49	93	93	72-123	0	30
2-Butanone	7500	5661.09	6085.92	75	81	46-153	7	30
4-Methyl-2-pentanone	5000	4304.32	4364.45	86	87	61-134	1	30
Benzene	1000	1022.89	1050.66	102	105	80-120	3	30
Bromochloromethane	1000	1093.31	1111.48	109	111	79-124	2	30
Bromodichloromethane	1000	924.1	944.69	92	94	78-120	2	30
Carbon Tetrachloride	1000	875.03	873.86	88	87	69-122	0	30
Chloroform	1000	957.67	982.61	96	98	80-120	3	30
cis-1,2-Dichloroethene	1000	1016.93	1045.31	102	105	80-120	3	30
cis-1,3-Dichloropropene	1000	959.77	1008.7	96	101	80-120	5	30
Cyclohexane	1000	862.69	818.77	86	82	62-121	5	30
Dibromomethane	1000	990.8	1023.7	99	102	80-120	3	30
Methyl Tertiary Butyl Ether	1000	1016.68	1047.04	102	105	74-121	3	30
Methylcyclohexane	1000	871.82	826	87	83	57-138	5	30
Methylene Chloride	1000	1073.87	1118.04	107	112	76-124	4	30
Toluene	1000	946.95	959.96	95	96	80-120	1	30
trans-1,2-Dichloroethene	1000	1039.93	1063.26	104	106	79-120	2	30
Trichloroethene	1000	950.36	964.29	95	96	80-120	1	30
1,1,1,2-Tetrachloroethane	1000	896.54	917.72	90	92	80-120	2	30
1,1,2,2-Tetrachloroethane	1000	970.36	968.87	97	97	71-123	0	30
1,1,2-Trichloroethane	1000	966.72	961.3	97	96	80-120	1	30
1,2,3-Trichloropropane	1000	919.25	921.95	92	92	71-123	0	30
1,2,4-Trimethylbenzene	1000	879.54	908.3	88	91	79-120	3	30
1,2-Dibromo-3-chloropropane	1000	707.03	707.31	71	71	58-120	0	30
1,2-Dibromoethane	1000	931.16	957.99	93	96	80-120	3	30

GC/MS Volatiles

Fraction: Volatiles by GC/MS

LCS: LCSR63 LCSD: LCDR63	Batch: **R113632AA** (Sample number(s): 6503455)							
Analyte	**Spike Added ug/kg**	**LCS Conc ug/kg**	**LCSD Conc ug/kg**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
1,2-Dichlorobenzene	1000	913.44	938.44	91	94	79-120	3	30
1,3,5-Trimethylbenzene	1000	882.1	893.78	88	89	78-120	1	30
1,3-Dichlorobenzene	1000	923.5	943.85	92	94	78-120	2	30
1,3-Dichloropropane	1000	946.65	963.3	95	96	80-120	2	30
1,4-Dichlorobenzene	1000	913.51	940.4	91	94	79-120	3	30
2-Chlorotoluene	1000	946.56	949.92	95	95	78-120	0	30
2-Hexanone	5000	3558.56	3621.84	71	72	45-155	2	30
4-Chlorotoluene	1000	938.59	977.57	94	98	79-120	4	30
Bromobenzene	1000	967.54	1000.8	97	100	79-120	3	30
Bromoform	1000	803.22	835.28	80	84	70-120	4	30
Chlorobenzene	1000	936.26	945.62	94	95	80-120	1	30
Dibromochloromethane	1000	898.05	913.74	90	91	77-120	2	30
Ethylbenzene	1000	855.02	866.3	86	87	80-120	1	30
Isopropylbenzene	1000	793.96	803.94	79	80	76-120	1	30
m+p-Xylene	2000	1756.57	1818.5	88	91	80-120	3	30
n-Butylbenzene	1000	895.43	934.57	90	93	72-120	4	30
n-Propylbenzene	1000	917.04	929.11	92	93	77-120	1	30
o-Xylene	1000	881.23	893.1	88	89	80-120	1	30
p-Isopropyltoluene	1000	888.42	915.65	89	92	75-120	3	30
sec-Butylbenzene	1000	884.03	906	88	91	75-120	2	30
Styrene	1000	870.94	881.12	87	88	76-120	1	30
tert-Butylbenzene	1000	901.45	911.16	90	91	75-120	1	30
Tetrachloroethene	1000	872.27	875.42	87	88	77-120	0	30
trans-1,3-Dichloropropene	1000	910.51	935.27	91	94	77-120	3	30
1,2,3-Trichlorobenzene	1000	594.64	721.83	59 *	72	64-120	19	30
1,2,4-Trichlorobenzene	1000	712.59	824.99	71	82	68-120	15	30
Hexachlorobutadiene	1000	748.53	773.81	75	77	57-120	3	30
Naphthalene	1000	612.68	674.3	61	67	59-123	10	30

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: DHR12
Matrix: LIQUID

GC/MS Volatiles

Fraction: Volatiles by GC/MS

LCS: LCSM77 LCSD: LCDM77	Batch: **M113551AA** (Sample number(s): 6503453-6503454)							
Analyte	**Spike Added ug/l**	**LCS Conc ug/l**	**LCSD Conc ug/l**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Chloromethane	20	17.06	17.89	85	89	63-135	5	30
Vinyl Chloride	20	17.31	17.9	87	89	62-129	3	30
Bromomethane	20	16.5	16.98	83	85	61-128	3	30
Chloroethane	20	15.37	15.61	77	78	61-128	2	30
Trichlorofluoromethane	20	16.88	17.1	84	85	67-124	1	30
Acrolein	150	132.44	137.11	88	91	53-126	3	30
1,1-Dichloroethene	20	16.26	16.28	81	81	77-129	0	30
Methylene Chloride	20	17.47	17.29	87	86	77-128	1	30
Acrylonitrile	100	79.51	79.73	80	80	61-120	0	30
trans-1,2-Dichloroethene	20	16.85	16.83	84	84	79-125	0	30
1,1-Dichloroethane	20	16.74	16.75	84	84	75-130	0	30
cis-1,2-Dichloroethene	20	17.17	16.88	86	84	78-125	2	30
Chloroform	20	16.79	16.89	84	84	80-125	1	30
1,1,1-Trichloroethane	20	15.39	15.58	77	78	74-127	1	30
Carbon Tetrachloride	20	15.06	15.16	75	76	75-121	1	30
Benzene	20	21.08	21.1	105	105	80-121	0	30
1,2-Dichloroethane	20	21.16	21.21	106	106	72-138	0	30
Trichloroethene	20	20.12	20.4	101	102	80-120	1	30
1,2-Dichloropropane	20	21.13	20.88	106	104	78-121	1	30
Bromodichloromethane	20	21.59	21.63	108	108	76-123	0	30
2-Chloroethyl Vinyl Ether	20	17.12	17.54	86	88	47-128	2	30
cis-1,3-Dichloropropene	20	17.56	19.2	88	96	79-120	9	30
Toluene	20	19.13	19.3	96	96	80-120	1	30
trans-1,3-Dichloropropene	20	18.26	19.22	91	96	74-120	5	30
1,1,2-Trichloroethane	20	18.94	18.76	95	94	80-120	1	30
Tetrachloroethene	20	18.79	18.76	94	94	77-127	0	30
Dibromochloromethane	20	19.18	19.03	96	95	74-121	1	30
Chlorobenzene	20	18.69	18.45	93	92	80-120	1	30
Ethylbenzene	20	19.15	19.01	96	95	80-120	1	30
Bromoform	20	19.36	18.94	97	95	63-123	2	30
1,1,2,2-Tetrachloroethane	20	19.39	19.37	97	97	80-120	0	30
1,3-Dichlorobenzene	20	19.05	18.97	95	95	78-124	0	30
1,4-Dichlorobenzene	20	19.04	18.92	95	95	78-124	1	30
1,2-Dichlorobenzene	20	18.75	18.75	94	94	78-125	0	30

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_DHR12___

Lab File ID: ag05t01.d BFB Injection Date: 08/05/11

Instrument ID: HP09685 BFB Injection Time: 16:24

Matrix: (soil/water) SOIL Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	16.65
75	30.0 - 60.0% of mass 95	47.62
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.92
173	Less than 2.0% of mass 174	0.50 (0.60)1
174	Greater than 50.0% of mass 95	83.83
175	5.0 - 9.0% of mass 174	5.89 (7.02)1
176	Greater than 95.0%, but less than 101.0% of mass 174	81.23 (96.90)1
177	5.0 - 9.0% of mass 176	5.36 (6.60)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD300	ag05i01.d	08/05/11	16:46
02	VSTD100	ag05i02.d	08/05/11	17:09
03	VSTD50	ag05i03.d	08/05/11	17:31
04	VSTD20	ag05i04.d	08/05/11	17:54
05	VSTD10	ag05i05.d	08/05/11	18:16
06	VSTD4	ag05i06.d	08/05/11	18:39
07	VSTD0001	ag05m01.d	08/05/11	19:01
08	VSTD300	ag05i11.d	08/05/11	19:24
09	VSTD100	ag05i12.d	08/05/11	19:46
10	VSTD50	ag05i13.d	08/05/11	20:09
11	VSTD20	ag05i14.d	08/05/11	20:31
12	VSTD10	ag05i15.d	08/05/11	20:54
13	VSTD4	ag05i16.d	08/05/11	21:17
14	VSTD0001	ag05m11.d	08/05/11	21:39
15	VBLKA00	ag05b01.d	08/05/11	22:02
16	LCS1A00	ag05l02.d	08/05/11	22:47
17	6355784RE	ag05s01.d	08/05/11	23:09
18	LCSA00	ag05l03.d	08/05/11	23:53
19	LCDA00	ag05l04.d	08/06/11	00:18
20	LCD1A00	ag05l05.d	08/06/11	00:41
21	6364612	ag05s02.d	08/06/11	01:34
22	6364610	ag05s03.d	08/06/11	01:56

DHR12.0051

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.: DHR12___

Lab File ID: ag05t01.d BFB Injection Date: 08/05/11

Instrument ID: HP09685 BFB Injection Time: 16:24

Matrix: (soil/water) SOIL Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	16.65
75	30.0 - 60.0% of mass 95	47.62
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.92
173	Less than 2.0% of mass 174	0.50 (0.60)1
174	Greater than 50.0% of mass 95	83.83
175	5.0 - 9.0% of mass 174	5.89 (7.02)1
176	Greater than 95.0%, but less than 101.0% of mass 174	81.23 (96.90)1
177	5.0 - 9.0% of mass 176	5.36 (6.60)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
23	6365515	ag05s05.d	08/06/11	02:41
24	6365516	ag05s06.d	08/06/11	03:03
25	6365519	ag05s07.d	08/06/11	03:25
26	6365520	ag05s08.d	08/06/11	03:48
27	6365518	ag05s09.d	08/06/11	04:11

DHR12 0852

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_DHR12___

Lab File ID: ag29t01.d BFB Injection Date: 08/29/11

Instrument ID: HP09685 BFB Injection Time: 16:52

Matrix: (soil/water) SOIL Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	17.47
75	30.0 - 60.0% of mass 95	47.38
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.88
173	Less than 2.0% of mass 174	0.19 (0.23)1
174	Greater than 50.0% of mass 95	81.05
175	5.0 - 9.0% of mass 174	5.81 (7.17)1
176	Greater than 95.0%, but less than 101.0% of mass 174	78.18 (96.46)1
177	5.0 - 9.0% of mass 176	5.29 (6.77)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD300	ag29i01.d	08/29/11	17:17
02	VSTD100	ag29i02.d	08/29/11	17:40
03	VSTD50	ag29i03.d	08/29/11	18:03
04	VSTD20	ag29i04.d	08/29/11	18:26
05	VSTD10	ag29i05.d	08/29/11	18:49
06	VSTD4	ag29i06.d	08/29/11	19:12
07	VSTD50	ag29c01.d	08/29/11	20:04
08	VBLKA16	ag29b01.d	08/29/11	20:27
09	LCSA16	ag29l01.d	08/29/11	21:03
10	LCDA16	ag29l02.d	08/29/11	21:26
11	LCS1A16	ag29l03.d	08/29/11	22:01
12	LCD1A16	ag29l04.d	08/29/11	22:24
13	6379844RE	ag29s01.d	08/29/11	23:15
14	6382780	ag29s02.d	08/29/11	23:37
15	6382781	ag29s03.d	08/30/11	00:00
16	6388146	ag29s04.d	08/30/11	00:23
17	6389936	ag29s05.d	08/30/11	00:45
18	6389939	ag29s06.d	08/30/11	01:08
19	6389940	ag29s07.d	08/30/11	01:31
20	6389941	ag29s08.d	08/30/11	01:53
21	6389938	ag29s10.d	08/30/11	02:38
22	6388139	ag29s11.d	08/30/11	03:01

DHR12 0053

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_DHR12___

Lab File ID: ag29t01.d BFB Injection Date: 08/29/11

Instrument ID: HP09685 BFB Injection Time: 16:52

Matrix: (soil/water) SOIL Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	17.47
75	30.0 - 60.0% of mass 95	47.38
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.88
173	Less than 2.0% of mass 174	0.19 (0.23)1
174	Greater than 50.0% of mass 95	81.05
175	5.0 - 9.0% of mass 174	5.81 (7.17)1
176	Greater than 95.0%, but less than 101.0% of mass 174	78.18 (96.46)1
177	5.0 - 9.0% of mass 176	5.29 (6.77)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
23	6388141	ag29s13.d	08/30/11	03:46
24	6386799	ag29s15.d	08/30/11	04:31

DHR12 8854

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_DHR12___

Lab File ID: ad29t01.d BFB Injection Date: 12/29/11

Instrument ID: HP09685 BFB Injection Time: 09:51

Matrix: (soil/water) SOIL Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	20.13
75	30.0 - 60.0% of mass 95	52.73
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.95
173	Less than 2.0% of mass 174	0.00 (0.00)1
174	Greater than 50.0% of mass 95	88.88
175	5.0 - 9.0% of mass 174	6.41 (7.22)1
176	Greater than 95.0%, but less than 101.0% of mass 174	87.24 (98.14)1
177	5.0 - 9.0% of mass 176	5.81 (6.66)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD50	ad29c01.d	12/29/11	10:19
02	VSTD50	ad29c02.d	12/29/11	10:43
03	VBLKA87	ad29l01.d	12/29/11	11:28
04	LCSA87	ad29l02.d	12/29/11	12:01
05	LCDA87	ad29l03.d	12/29/11	12:26
06	LCS1A87	ad29l04.d	12/29/11	13:02
07	LCD1A87	ad29l05.d	12/29/11	13:24
08	6504234	ad29s01.d	12/29/11	14:09
09	6504235	ad29s02.d	12/29/11	14:31
10	6503333RE	ad29s03.d	12/29/11	14:54
11	6502136RE	ad29s04.d	12/29/11	15:17
12	6503456	ad29s05.d	12/29/11	15:40
13	6503457	ad29s06.d	12/29/11	16:03
14	6503538	ad29s07.d	12/29/11	16:25
15	6509827	ad29s08.d	12/29/11	16:48
16	6509828	ad29s09.d	12/29/11	17:11
17	6509829	ad29s10.d	12/29/11	17:33
18	6509830	ad29s11.d	12/29/11	17:56
19	6509831	ad29s12.d	12/29/11	18:18
20	6509832	ad29s13.d	12/29/11	18:41
21	6509837	ad29s14.d	12/29/11	19:04
22	6509838	ad29s15.d	12/29/11	19:27

DHR12 0035

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_DHR12___

Lab File ID: ad29t01.d BFB Injection Date: 12/29/11

Instrument ID: HP09685 BFB Injection Time: 09:51

Matrix: (soil/water) SOIL Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	20.13
75	30.0 - 60.0% of mass 95	52.73
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.95
173	Less than 2.0% of mass 174	0.00 (0.00)1
174	Greater than 50.0% of mass 95	88.88
175	5.0 - 9.0% of mass 174	6.41 (7.22)1
176	Greater than 95.0%, but less than 101.0% of mass 174	87.24 (98.14)1
177	5.0 - 9.0% of mass 176	5.81 (6.66)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
23	6509839	ad29s16.d	12/29/11	19:49
24	6509840	ad29s17.d	12/29/11	20:12
25	6509842	ad29s18.d	12/29/11	20:35
26	6509845	ad29s19.d	12/29/11	20:57

DHR12 8656

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_DHR12___

Lab File ID: rc18t01.d BFB Injection Date: 10/18/11

Instrument ID: HP07566 BFB Injection Time: 04:26

Matrix: (soil/water) SOIL Level: (low/med) MED Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	17.90
75	30.0 - 60.0% of mass 95	47.06
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.83
173	Less than 2.0% of mass 174	0.50 (0.64)1
174	Greater than 50.0% of mass 95	78.65
175	5.0 - 9.0% of mass 174	5.35 (6.80)1
176	Greater than 95.0%, but less than 101.0% of mass 174	75.29 (95.72)1
177	5.0 - 9.0% of mass 176	5.28 (7.02)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD300	rc18i11.d	10/18/11	07:53
02	VSTD100	rc18i12.d	10/18/11	08:16
03	VSTD50	rc18i13.d	10/18/11	08:39
04	VSTD20	rc18i14.d	10/18/11	09:02
05	VSTD10	rc18i15.d	10/18/11	09:25
06	VSTD4	rc18i16.d	10/18/11	09:48
07	1PPBMDL - VSTD001	rc18m11.d	10/18/11	10:11
08	RLGICV	rc18v11.d	10/18/11	10:33

DHR12 8857

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_DHR12___

Lab File ID: rc18t03.d BFB Injection Date: 10/18/11

Instrument ID: HP07566 BFB Injection Time: 17:40

Matrix: (soil/water) SOIL Level: (low/med) MED Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	18.89
75	30.0 - 60.0% of mass 95	48.41
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.39
173	Less than 2.0% of mass 174	0.13 (0.18)1
174	Greater than 50.0% of mass 95	73.04
175	5.0 - 9.0% of mass 174	5.67 (7.76)1
176	Greater than 95.0%, but less than 101.0% of mass 174	70.32 (96.28)1
177	5.0 - 9.0% of mass 176	4.64 (6.60)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD300	rc18i30.d	10/18/11	18:02
02	VSTD100	rc18i31.d	10/18/11	18:25
03	VSTD50	rc18i32.d	10/18/11	18:48
04	VSTD20	rc18i33.d	10/18/11	19:11
05	VSTD10	rc18i34.d	10/18/11	19:33
06	VSTD4	rc18i35.d	10/18/11	19:56
07	1PPBMDL - VSTD001	rc18m31.d	10/18/11	20:19
08	RSMICV	rc18v31.d	10/18/11	20:45

DHR12 0059

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_DHR12___

Lab File ID: rd29t02.d BFB Injection Date: 12/29/11

Instrument ID: HP07566 BFB Injection Time: 20:29

Matrix: (soil/water) SOIL Level: (low/med) MED Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	17.49
75	30.0 - 60.0% of mass 95	44.19
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.55
173	Less than 2.0% of mass 174	0.13 (0.17)1
174	Greater than 50.0% of mass 95	77.63
175	5.0 - 9.0% of mass 174	5.53 (7.13)1
176	Greater than 95.0%, but less than 101.0% of mass 174	74.61 (96.11)1
177	5.0 - 9.0% of mass 176	5.01 (6.71)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD50	rd29c10.d	12/29/11	20:54
02	VSTD50	rd29c11.d	12/29/11	21:17
03	VBLKR63	rd29b10.d	12/29/11	21:40
04	LCSR63	rd29110.d	12/29/11	22:03
05	LCDR63	rd29111.d	12/29/11	22:26
06	LCS1R63	rd29112.d	12/29/11	22:49
07	LCD1R63	rd29113.d	12/29/11	23:12
08	6509479	rd29s30.d	12/29/11	23:35
09	6504793	rd29s31.d	12/30/11	00:21
10	6507320DL	rd29s32.d	12/30/11	00:43
11	6507324	rd29s33.d	12/30/11	01:06
12	6507326	rd29s34.d	12/30/11	01:29
13	6507330	rd29s35.d	12/30/11	01:52
14	6503455	rd29s36.d	12/30/11	02:15
15	6504469	rd29s37.d	12/30/11	02:38
16	6503538DL	rd29s39.d	12/30/11	03:28
17	6508032	rd29s40.d	12/30/11	03:51
18	6508030	rd29s41.d	12/30/11	04:14
19	6507324RE	rd29s42.d	12/30/11	04:36
20	6507324DL	rd29s43.d	12/30/11	05:00
21	6507326RE	rd29s44.d	12/30/11	05:23
22	6507326DL	rd29s45.d	12/30/11	05:45

DHR12 0059

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_DHR12___

Lab File ID: rd29t02.d BFB Injection Date: 12/29/11

Instrument ID: HP07566 BFB Injection Time: 20:29

Matrix: (soil/water) SOIL Level: (low/med) MED Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	17.49
75	30.0 - 60.0% of mass 95	44.19
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.55
173	Less than 2.0% of mass 174	0.13 (0.17)1
174	Greater than 50.0% of mass 95	77.63
175	5.0 - 9.0% of mass 174	5.53 (7.13)1
176	Greater than 95.0%, but less than 101.0% of mass 174	74.61 (96.11)1
177	5.0 - 9.0% of mass 176	5.01 (6.71)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
23	6507320DLRE	rd29s46.d	12/30/11	06:13
24	6503455RE	rd29s47.d	12/30/11	06:36
25	6504469DL	rd29s48.d	12/30/11	06:59
26	6508030DL	rd29s49.d	12/30/11	07:22
27	6503378	rd29s50.d	12/30/11	07:45
28	6509479RE	rd29s51.d	12/30/11	08:09

DHR12 8868

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_DHR12___

Lab File ID: md13t01.d BFB Injection Date: 12/13/11

Instrument ID: HP06720 BFB Injection Time: 09:39

Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	19.88
75	30.0 - 60.0% of mass 95	43.99
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.46
173	Less than 2.0% of mass 174	0.00 (0.00)1
174	Greater than 50.0% of mass 95	71.19
175	5.0 - 9.0% of mass 174	5.42 (7.61)1
176	Greater than 95.0%, but less than 101.0% of mass 174	69.34 (97.40)1
177	5.0 - 9.0% of mass 176	4.61 (6.65)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD20	md13c01.d	12/13/11	10:21
02	VSTD300	md13i01.d	12/13/11	10:46
03	VSTD100	md13i02.d	12/13/11	11:12
04	VSTD50	md13i03.d	12/13/11	11:37
05	VSTD20	md13i04.d	12/13/11	12:03
06	VSTD4	md13i05.d	12/13/11	12:28
07	MDL001 - MDL001	md13m01.d	12/13/11	12:54
08	VBLKM70	md13b01.d	12/13/11	13:19
09	LCSM70	md13l01.d	12/13/11	13:44
10	LCS1M70	md13l02.d	12/13/11	14:10
11	6491793	md13s01.d	12/13/11	14:48
12	6494285	md13s02.d	12/13/11	15:13
13	6493010	md13s04.d	12/13/11	16:04
14	6493057	md13s05.d	12/13/11	16:29
15	6493053	md13s06.d	12/13/11	16:55
16	6493054MS	md13s07.d	12/13/11	17:20
17	6493055MSD	md13s08.d	12/13/11	17:46
18	6493054MS1	md13s09.d	12/13/11	18:11
19	6493055MSD1	md13s10.d	12/13/11	18:36
20	6493056	md13s11.d	12/13/11	19:02
21	6495501	md13s12.d	12/13/11	19:27
22	6495499	md13s13.d	12/13/11	19:52

DHR12: 6961

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_DHR12___

Lab File ID: md13t01.d BFB Injection Date: 12/13/11

Instrument ID: HP06720 BFB Injection Time: 09:39

Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	19.88
75	30.0 - 60.0% of mass 95	43.99
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.46
173	Less than 2.0% of mass 174	0.00 (0.00)1
174	Greater than 50.0% of mass 95	71.19
175	5.0 - 9.0% of mass 174	5.42 (7.61)1
176	Greater than 95.0%, but less than 101.0% of mass 174	69.34 (97.40)1
177	5.0 - 9.0% of mass 176	4.61 (6.65)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
23	6495500	md13s14.d	12/13/11	20:18
24	6488391	md13s15.d	12/13/11	20:43
25	6488392	md13s16.d	12/13/11	21:08
26	6488383	md13s17.d	12/13/11	21:34
27	6488384	md13s18.d	12/13/11	21:59
28	6488388	md13s22.d	12/13/11	23:41
29	6488389	md13s23.d	12/14/11	00:06
30	6488390	md13s24.d	12/14/11	00:31
31	6490550DL	md13s25.d	12/14/11	00:57
32	6488385	md13s27.d	12/14/11	07:19
33	6488386	md13s28.d	12/14/11	07:44
34	6488387	md13s29.d	12/14/11	08:09

DHR12 8862

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_DHR12___

Lab File ID: md21t01.d BFB Injection Date: 12/21/11

Instrument ID: HP06720 BFB Injection Time: 11:05

Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	20.15
75	30.0 - 60.0% of mass 95	44.95
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.64
173	Less than 2.0% of mass 174	0.00 (0.00)1
174	Greater than 50.0% of mass 95	70.15
175	5.0 - 9.0% of mass 174	5.20 (7.41)1
176	Greater than 95.0%, but less than 101.0% of mass 174	68.76 (98.02)1
177	5.0 - 9.0% of mass 176	4.66 (6.78)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD20	md21c01.d	12/21/11	11:29
02	VBLKM77	md21b01.d	12/21/11	11:55
03	LCSM77	md21l01.d	12/21/11	12:20
04	LCDM77	md21l02.d	12/21/11	12:45
05	VC0.5 - VC0.5	md21vc1.d	12/21/11	13:10
06	6499859	md21s01.d	12/21/11	13:56
07	6499860	md21s02.d	12/21/11	14:21
08	6498925	md21s03.d	12/21/11	14:46
09	6498925DL	md21s04.d	12/21/11	15:12
10	6498926	md21s05.d	12/21/11	15:37
11	6498927	md21s06.d	12/21/11	16:02
12	6499849	md21s07.d	12/21/11	16:28
13	6500695	md21s08.d	12/21/11	16:53
14	6500696	md21s09.d	12/21/11	17:18
15	6500696DL	md21s10.d	12/21/11	17:43
16	6501071	md21s11.d	12/21/11	18:09
17	6501072	md21s12.d	12/21/11	18:34
18	6501073	md21s13.d	12/21/11	18:59
19	6501809	md21s14.d	12/21/11	19:25
20	6501810	md21s15.d	12/21/11	19:50
21	6501833DL	md21s16.d	12/21/11	20:15
22	6503453	md21s18.d	12/21/11	21:06

DHR12 6863

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_DHR12___

Lab File ID: md21t01.d BFB Injection Date: 12/21/11

Instrument ID: HP06720 BFB Injection Time: 11:05

Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	20.15
75	30.0 - 60.0% of mass 95	44.95
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.64
173	Less than 2.0% of mass 174	0.00 (0.00)1
174	Greater than 50.0% of mass 95	70.15
175	5.0 - 9.0% of mass 174	5.20 (7.41)1
176	Greater than 95.0%, but less than 101.0% of mass 174	68.76 (98.02)1
177	5.0 - 9.0% of mass 176	4.66 (6.78)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
23	6503454	md21s19.d	12/21/11	21:32
24	6505020	md21s20.d	12/21/11	21:57
25	6505021	md21s21.d	12/21/11	22:22
26	6505431	md21s22.d	12/21/11	22:48
27	6505432	md21s23.d	12/21/11	23:14
28	6501833	md21s24.d	12/22/11	07:39

DHR12 0864

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09685 Calibration Date(s): 08/05/11 08/05/11

Heated Purge: (Y/N) Y Calibration Times: 16:46 18:39

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: DB-624 ID: .25

LAB FILE ID: RRF 4 = ag05i06.d RRF 10= ag05i05.d RRF 20= ag05i04.d
RRF 50= ag05i03.d RRF100= ag05i02.d RRF300= ag05i01.d RRF =

COMPOUND	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	$\overline{RRF}$	% RSD	CAL. METHOD	
Dichlorodifluoromethane	0.4002	0.3760	0.3842	0.4671	0.4416	0.3969		0.4110	9	AVG	
Chloromethane	#0.3802	0.3704	0.3795	0.4270	0.4007	0.3664		0.3874	6	AVG	#
Vinyl Chloride	*0.4000	0.3727	0.3795	0.4384	0.4054	0.3734		0.3949	6	AVG	*
Bromomethane	0.2817	0.2727	0.2527	0.2727	0.2502	N/A		0.2660	5	AVG	
Chloroethane	0.2170	0.2137	0.2131	0.2265	0.2272	0.1444		0.2070	15	AVG	
Trichlorofluoromethane	0.4774	0.4452	0.4506	0.5253	0.5001	0.4289		0.4712	8	AVG	
Ethanol	0.1380	0.1249	0.1123	0.1192	0.1029	0.1139		0.1185	10	AVG	
Freon 123a	0.3489	0.3454	0.3458	0.3411	0.3423	0.3103		0.3390	4	AVG	
Acrolein	1.5457	1.7705	1.6582	1.9737	2.2793	1.8750		1.8504	14	AVG	
1,1-Dichloroethene	*0.2531	0.2489	0.2567	0.2566	0.2644	0.2388		0.2531	3	AVG	*
Dichlorofluoromethane	0.5932	0.5823	0.5781	0.5530	0.5418	0.4541		0.5504	9	AVG	
Freon 113	0.2717	0.2619	0.2648	0.2770	0.2857	0.2538		0.2691	4	AVG	
Acetone	0.0333	0.0266	0.0280	0.0334	0.0291	0.0264		0.0295	11	AVG	
Methyl Iodide	0.4626	0.4847	0.4984	0.4917	0.5047	0.4584		0.4834	4	AVG	
2-Propanol	0.7445	0.7607	0.7236	0.7004	0.6938	0.7118		0.7225	4	AVG	
Carbon Disulfide	0.8279	0.8424	0.8717	0.8706	0.9053	0.7976		0.8526	4	AVG	
Allyl Chloride	0.3826	0.3487	0.3538	0.3764	0.3859	0.3559		0.3672	4	AVG	
Methyl Acetate	0.2347	0.1852	0.1928	0.2013	0.1906	0.1780		0.1971	10	AVG	
Methylene Chloride	0.3516	0.3239	0.3166	0.3026	0.3045	0.2757		0.3125	8	AVG	
t-Butyl Alcohol	1.2757	1.3904	1.3817	1.3347	1.3260	1.1543		1.3104	7	AVG	
Acrylonitrile	0.1113	0.0926	0.1019	0.1176	0.1052	0.0955		0.1040	9	AVG	
trans-1,2-Dichloroethene	0.2799	0.2933	0.3018	0.2967	0.3064	0.2788		0.2928	4	AVG	
Methyl Tertiary Butyl Ether	0.8152	0.8311	0.8795	0.8723	0.8511	0.7991		0.8414	4	AVG	
n-Hexane	0.3765	0.3707	0.3749	0.3921	0.4028	0.3779		0.3825	3	AVG	
1,1-Dichloroethane	#0.4903	0.5134	0.5221	0.5149	0.5237	0.4711		0.5059	4	AVG	#
2-Chloro-1,3-Butadiene	0.3755	0.3923	0.4117	0.4264	0.4446	0.4014		0.4086	6	AVG	
di-Isopropyl Ether	0.7989	0.8430	0.8641	0.8629	0.8660	0.7856		0.8368	4	AVG	
Ethyl t-Butyl Ether	0.8081	0.8504	0.8841	0.8906	0.8891	0.8223		0.8574	4	AVG	
cis-1,2-Dichloroethene	0.3194	0.3282	0.3326	0.3294	0.3369	0.3117		0.3264	3	AVG	
1,2-Dichloroethene (total)	0.2997	0.3107	0.3172	0.3130	0.3217	0.2952		0.3096	3	AVG	
2,2-Dichloropropane	0.4113	0.4270	0.4424	0.4501	0.4678	0.4236		0.4370	5	AVG	
2-Butanone	0.1437	0.1213	0.1403	0.1687	0.1493	0.1320		0.1426	11	AVG	
Propionitrile	1.3079	1.5768	1.4690	1.4129	1.4976	1.3322		1.4327	7	AVG	
Methacrylonitrile	0.1343	0.1300	0.1445	0.1467	0.1324	0.1295		0.1362	6	AVG	
Bromochloromethane	0.1590	0.1563	0.1581	0.1671	0.1657	0.1629		0.1615	3	AVG	
Tetrahydrofuran	1.1957	1.3235	1.2617	1.4254	1.5396	1.3267		1.3454	9	AVG	
Chloroform	*0.5068	0.5224	0.5322	0.5251	0.5302	0.4824		0.5165	4	AVG	*
1,1,1-Trichloroethane	0.5546	0.5085	0.5209	0.4854	0.4945	0.4518		0.5026	7	AVG	
Cyclohexane	0.4634	0.4589	0.4586	0.4779	0.4864	0.4414		0.4644	3	AVG	
Cyclohexane(mz84)	0.4303	0.4256	0.4187	0.4432	0.4447	0.4117		0.4290	3	AVG	
Cyclohexane(mz69)	0.1496	0.1491	0.1491	0.1546	0.1585	0.1446		0.1509	3	AVG	
1,1-Dichloropropene	0.3893	0.3979	0.4079	0.4087	0.4225	0.3863		0.4021	3	AVG	
Carbon Tetrachloride	0.3767	0.3851	0.3964	0.4035	0.4190	0.3866		0.3945	4	AVG	
Benzene	1.1762	1.2101	1.2149	1.1869	1.1999	1.0864		1.1791	4	AVG	
Isobutyl Alcohol	0.3775	0.4286	0.4260	0.4031	0.4012	0.3613		0.3996	7	AVG	
1,2-Dichloroethane	0.4157	0.4202	0.4289	0.4215	0.4174	0.3854		0.4148	4	AVG	
1,2-Dichloroethane(mz98)	0.0360	0.0378	0.0384	0.0378	0.0376	0.0360		0.0373	3	AVG	
t-Amyl Methyl Ether	0.7419	0.7733	0.8150	0.8246	0.8202	0.7781		0.7922	4	AVG	
n-Heptane	0.3681	0.3809	0.3895	0.3920	0.4032	0.3906		0.3874	3	AVG	
n-Butanol	0.3194	0.3728	0.3857	0.3832	0.3905	0.3596		0.3685	7	AVG	
Trichloroethene	0.3132	0.3192	0.3231	0.3206	0.3301	0.3041		0.3184	3	AVG	
Methylcyclohexane	0.5067	0.4504	0.4786	0.5390	0.5554	0.5382		0.5114	8	AVG	

Minimum RRF for SPCC(#) = 0.10
(0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %RSD for CCC(*) = 30%

DRRIZ 8865

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09685 Calibration Date(s): 08/05/11 08/05/11

Heated Purge: (Y/N) Y Calibration Times: 16:46 18:39

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: DB-624 ID: .25

LAB FILE ID: RRF 4 = ag05i06.d RRF 10= ag05i05.d RRF 20= ag05i04.d
RRF 50= ag05i03.d RRF100= ag05i02.d RRF300= ag05i01.d RRF =

COMPOUND	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	$\overline{RRF}$	% RSD	CAL. METHOD	
1,2-Dichloropropane	*0.2987	0.3124	0.3170	0.3167	0.3231	0.3044		0.3121	3	AVG	*
Dibromomethane	0.1961	0.1998	0.2075	0.2075	0.2042	0.1959		0.2018	3	AVG	
1,4-Dioxane	0.1310	0.1450	0.1409	0.1513	0.1462	0.1407		0.1425	5	AVG	
Methyl Methacrylate	0.2156	0.2086	0.2402	0.2508	0.2393	0.2365		0.2318	7	AVG	
Bromodichloromethane	0.3435	0.3721	0.3918	0.3992	0.4078	0.3848		0.3832	6	AVG	
2-Nitropropane	1.8434	2.2727	2.3055	2.8015	3.2583	N/A		2.4963	22	1STDEG	
cis-1,3-Dichloropropene	0.4163	0.4572	0.4864	0.4999	0.5096	0.4812		0.4751	7	AVG	
4-Methyl-2-Pentanone	0.2824	0.2570	0.3058	0.3808	0.3604	0.3012		0.3146	15	AVG	
Toluene	*1.0026	0.9895	1.0002	0.9703	0.9911	0.8950		0.9748	4	AVG	*
trans-1,3-Dichloropropene	0.5064	0.5572	0.5959	0.6148	0.6257	0.5931		0.5822	8	AVG	
Ethyl Methacrylate	0.4164	0.4523	0.5229	0.5590	0.5526	0.5332		0.5060	11	AVG	
1,1,2-Trichloroethane	0.3508	0.3546	0.3644	0.3598	0.3519	0.3329		0.3524	3	AVG	
Tetrachloroethene	0.4310	0.4413	0.4384	0.4392	0.4550	0.4170		0.4370	3	AVG	
1,3-Dichloropropane	0.5970	0.5975	0.6216	0.6202	0.6178	0.5828		0.6061	3	AVG	
2-Hexanone	0.2748	0.2403	0.2908	0.3637	0.3414	N/A		0.3022	17	1STDEG	
Dibromochloromethane	0.3318	0.3572	0.3898	0.4075	0.4170	0.4043		0.3846	9	AVG	
1,2-Dibromoethane	0.3481	0.3568	0.3797	0.3773	0.3687	0.3521		0.3638	4	AVG	
Chlorobenzene	#1.1258	1.1585	1.1582	1.1310	1.1523	1.0423		1.1280	4	AVG	#
1,1,1,2-Tetrachloroethane	0.3435	0.3754	0.3909	0.3933	0.4059	0.3887		0.3829	6	AVG	
Ethylbenzene	*1.8022	1.8905	1.8915	1.8690	1.9138	1.6258		1.8321	6	AVG	*
m+p-Xylene	0.7071	0.7486	0.7451	0.7453	0.7721	0.6211		0.7232	7	AVG	
Xylene (Total)	0.7017	0.7464	0.7450	0.7460	0.7718	0.6267		0.7229	7	AVG	
o-Xylene	0.6909	0.7418	0.7447	0.7474	0.7713	0.6381		0.7223	7	AVG	
Styrene	0.9897	1.1117	1.1913	1.2300	1.2779	1.0527		1.1422	10	AVG	
Bromoform	#0.2262	0.2449	0.2765	0.2995	0.3041	0.3036		0.2758	12	AVG	#
Isopropylbenzene	1.7089	1.8260	1.8499	1.8465	1.9076	1.6170		1.7926	6	AVG	
Cyclohexanone	0.3847	0.4284	0.4200	0.4384	0.4430	0.4332		0.4246	5	AVG	
Bromobenzene *	0.8569	0.8749	0.8692	0.8577	0.8786	0.7767		0.8523	4	AVG	
1,1,2,2-Tetrachloroethane	#0.9233	0.8713	0.9367	0.9288	0.8827	0.8138		0.8928	5	AVG	#
1,2,3-Trichloropropane	0.3261	0.2749	0.2908	0.2823	0.2654	0.2355		0.2792	11	AVG	
trans-1,4-Dichloro-2-Butene	0.2646	0.2709	0.2991	0.2891	0.2727	0.2319		0.2714	9	AVG	
n-Propylbenzene	3.8059	3.9038	3.8472	3.7686	3.8029	2.9230		3.6752	10	AVG	
2-Chlorotoluene	0.7983	0.8303	0.8145	0.8005	0.8262	0.7469		0.8028	4	AVG	
1,3,5-Trimethylbenzene	2.5633	2.7366	2.7148	2.7150	2.8440	2.3211		2.6491	7	AVG	
4-Chlorotoluene	0.8282	0.8602	0.8442	0.8356	0.8687	0.7451		0.8303	5	AVG	
tert-Butylbenzene	0.5981	0.6304	0.6460	0.6489	0.6773	0.5793		0.6300	6	AVG	
Pentachloroethane	0.4867	0.4874	0.5215	0.5589	0.5795	0.5089		0.5238	7	AVG	
1,2,4-Trimethylbenzene	2.7858	2.9321	2.9291	2.9069	3.0183	2.4471		2.8366	7	AVG	
sec-Butylbenzene	3.3243	3.4797	3.5079	3.5068	3.5900	2.8416		3.3751	8	AVG	
1,3-Dichlorobenzene	1.6906	1.6950	1.6589	1.6469	1.6947	1.4122		1.6330	7	AVG	
p-Isopropyltoluene	2.9352	3.1134	3.1546	3.1696	3.2735	2.5366		3.0305	9	AVG	
1,4-Dichlorobenzene	1.7624	1.7494	1.7115	1.6685	1.7074	1.4919		1.6819	6	AVG	
1,2,3-Trimethylbenzene	2.8786	2.7433	2.8234	2.9020	2.9903	2.5109		2.8081	6	AVG	
Benzyl Chloride	0.3464	0.3669	0.4277	0.4465	0.4475	0.4332		0.4114	11	AVG	
1,2-Dichlorobenzene	1.6598	1.6703	1.6403	1.6020	1.6346	1.4334		1.6067	5	AVG	
n-Butylbenzene	1.5377	1.5876	1.6220	1.6133	1.6717	1.3990		1.5719	6	AVG	
1,3-Diethylbenzene	1.7207	1.6420	1.7472	1.8440	1.9080	1.6494		1.7519	6	AVG	
1,4-Diethylbenzene	1.8094	1.7602	1.8468	1.9346	2.0179	1.6705		1.8399	7	AVG	
1,2-Diethylbenzene	1.5474	1.4719	1.5343	1.5770	1.6474	1.4258		1.5340	5	AVG	
1,2-Dibromo-3-Chloropropane	0.1895	0.1639	0.1956	0.2019	0.1887	0.1863		0.1877	7	AVG	
1,3,5-Trichlorobenzene	1.4093	1.3392	1.3486	1.3242	1.3718	1.2078		1.3335	5	AVG	
1,2,4-Trichlorobenzene	1.4287	1.2922	1.3016	1.2941	1.3268	1.1463		1.2983	7	AVG	

Minimum RRF for SPCC(#) = 0.10
(0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %RSD for CCC(*) = 30%

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09685 Calibration Date(s): 08/05/11 08/05/11

Heated Purge: (Y/N) Y Calibration Times: 16:46 18:39

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: DB-624 ID: .25

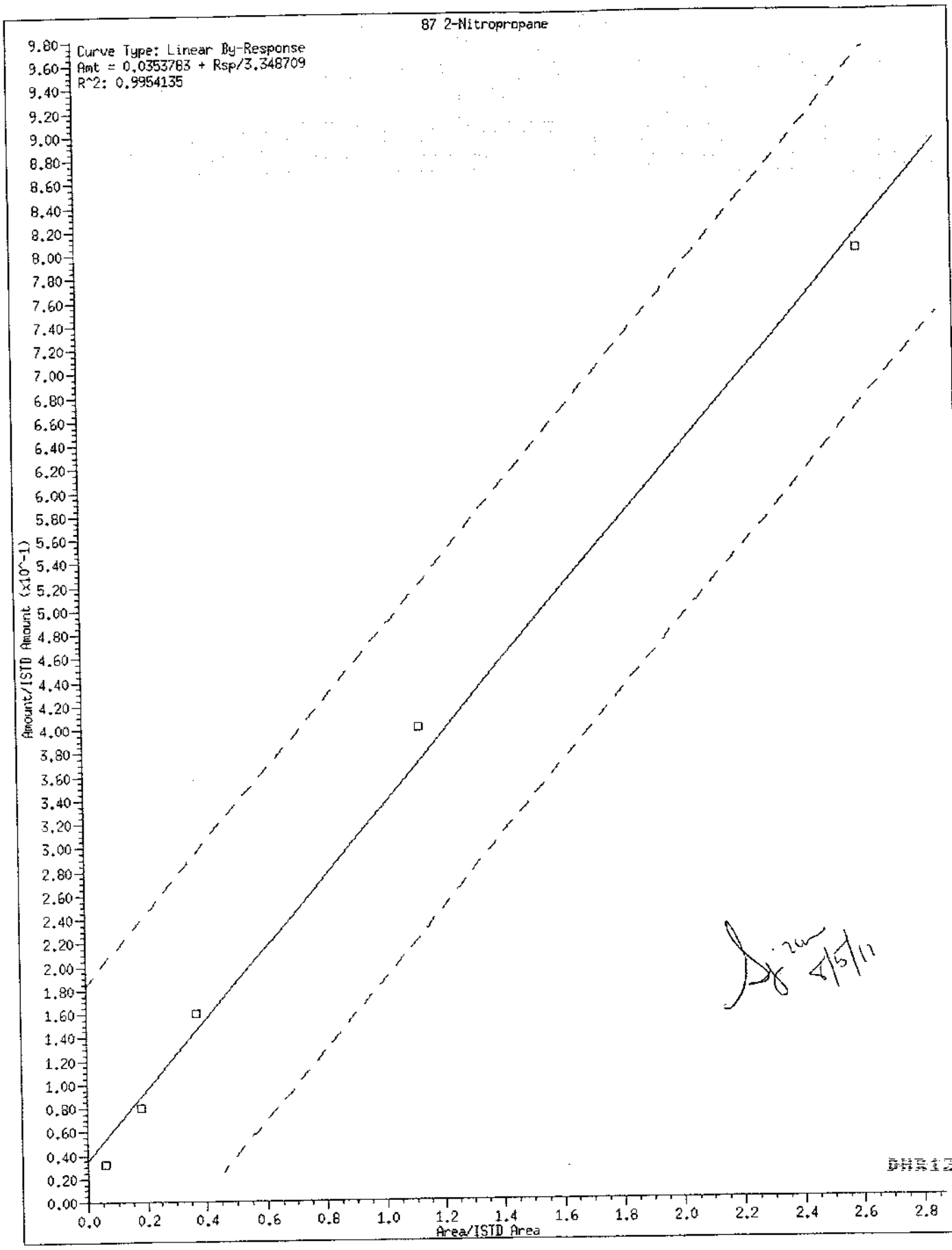
LAB FILE ID: RRF 4 = ag05i06.d RRF 10= ag05i05.d RRF 20= ag05i04.d
RRF 50= ag05i03.d RRF100= ag05i02.d RRF300= ag05i01.d RRF =

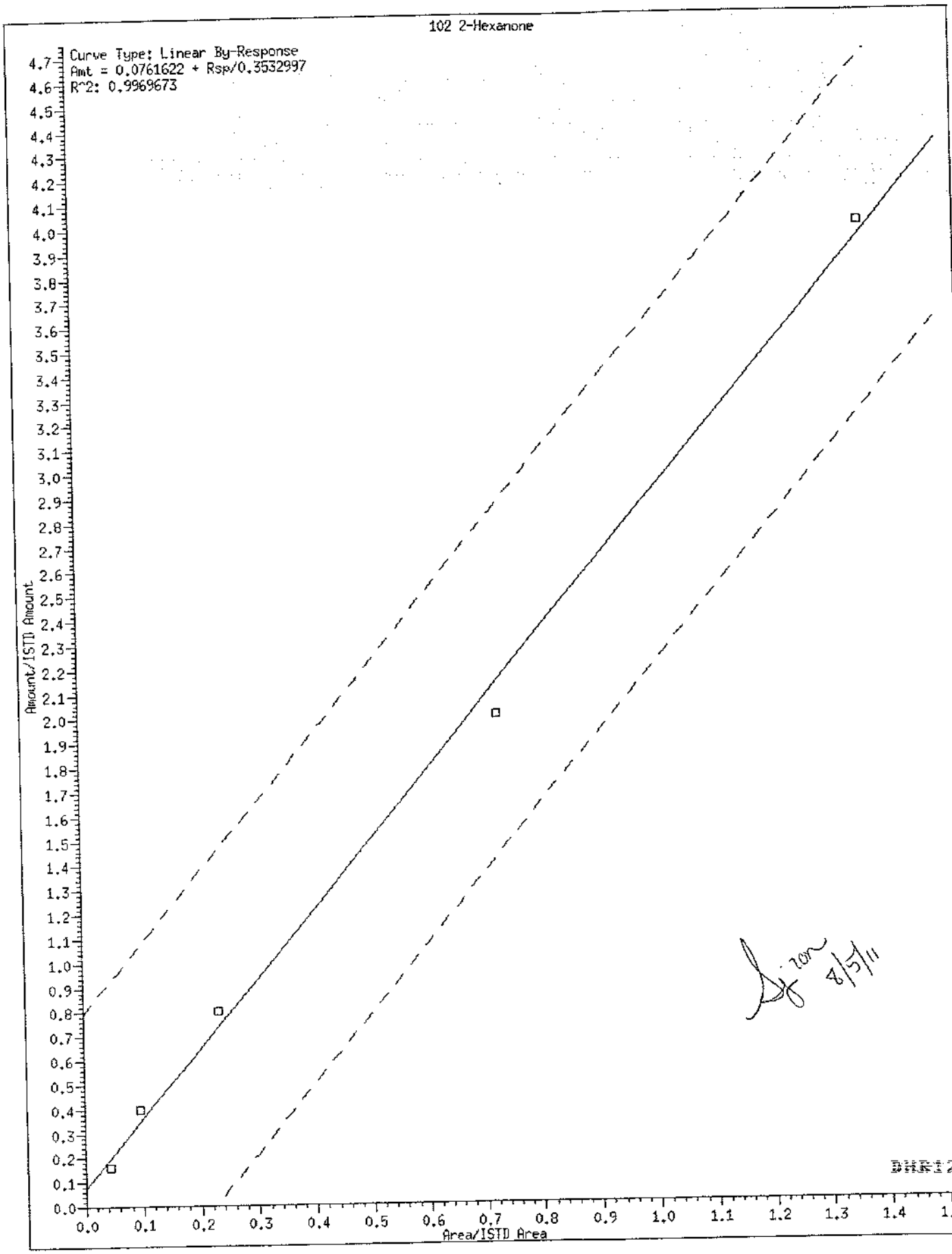
COMPOUND	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	$\overline{RRF}$	% RSD	CAL. METHOD
Hexachlorobutadiene	0.6734	0.6805	0.6972	0.6913	0.7219	0.6320		0.6827	4	AVG
Naphthalene	3.6958	3.2673	3.5174	3.4855	3.3253	2.6341		3.3209	11	AVG
1,2,3-Trichlorobenzene	1.3899	1.2388	1.2585	1.2227	1.2336	1.0627		1.2343	8	AVG
2-Methylnaphthalene	2.4273	1.9061	2.2215	2.3318	2.2521	1.8183		2.1595	11	AVG
Dibromofluoromethane	0.2424	0.2435	0.2437	0.2454	0.2418	0.2403		0.2428	1	AVG
Dibromofluoromethane(mz111)	0.2475	0.2491	0.2497	0.2507	0.2480	0.2457		0.2484	1	AVG
1,2-Dichloroethane-d4	0.0580	0.0572	0.0584	0.0573	0.0571	0.0568		0.0575	1	AVG
1,2-Dichloroethane-d4(mz65)	0.2858	0.2859	0.2853	0.2883	0.2777	0.2773		0.2834	2	AVG
1,2-Dichloroethane-d4(mz104)	0.0372	0.0359	0.0365	0.0367	0.0356	0.0362		0.0364	2	AVG
Toluene-d8	1.2710	1.2712	1.2732	1.2743	1.2715	1.2545		1.2693	1	AVG
Toluene-d8(mz100)	0.8234	0.8243	0.8261	0.8297	0.8310	0.8172		0.8253	1	AVG
4-Bromofluorobenzene	0.5074	0.5071	0.5106	0.5131	0.5132	0.5190		0.5117	1	AVG
4-Bromofluorobenzene(mz174)	0.4306	0.4308	0.4334	0.4299	0.4275	0.4340		0.4310	1	AVG

Average %RSD 6

Minimum RRF for SPCC(#) = 0.10
(0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %RSD for CCC(*) = 30%

FORM VI VOA


87 2-Nitropropane
Curve Type: Linear By-Response
Amt = 0.0353783 + Rsp/3.348709
R^2: 0.9954135
Amount/ISTD Amount (x10^-1)
Area/ISTD Area
4/5/11


102 2-Hexanone
Curve Type: Linear By-Response
Amt = 0.0761622 + Rsp/0.3532997
R^2: 0.9969673
Amount/ISTD Amount
Area/ISTD Area
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
4.7
4.6
4.5
4.4
4.3
4.2
4.1
4.0
3.9
3.8
3.7
3.6
3.5
3.4
3.3
3.2
3.1
3.0
2.9
2.8
2.7
2.6
2.5
2.4
2.3
2.2
2.1
2.0
1.9
1.8
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0

Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem2/HP09685.i/11aug05a.b/ag05i01.d VSTD300
/chem2/HP09685.i/11aug05a.b/ag05i02.d VSTD100
/chem2/HP09685.i/11aug05a.b/ag05i03.d VSTD050
/chem2/HP09685.i/11aug05a.b/ag05i04.d VSTD020
/chem2/HP09685.i/11aug05a.b/ag05i05.d VSTD010
/chem2/HP09685.i/11aug05a.b/ag05i06.d VSTD004

Area Summary

File ID:

Internal Standard Name	ag05i01.d	ag05i02.d	ag05i03.d	ag05i04.d	ag05i05.d	ag05i06.d	Avg. Area	%RSD	In Spec
t-Butyl Alcohol-d10	226314	212391	256942	240095	196900	254796	231240	10	Yes
Fluorobenzene	1511470	1500041	1477258	1458586	1427546	1407953	1463809	3	Yes
Chlorobenzene-d5	1213175	1196725	1179094	1162981	1138664	1119047	1168281	3	Yes
1,4-Dichlorobenzene-d4	743497	710985	695398	686229	668690	653961	693127	5	Yes

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

File ID:

Internal Standard Name	ag05i01.d	ag05i02.d	ag05i03.d	ag05i04.d	ag05i05.d	ag05i06.d	Avg. RT
t-Butyl Alcohol-d10	3.958	3.945	3.958	3.951	3.952	3.952	3.953
Fluorobenzene	7.413	7.407	7.413	7.413	7.407	7.413	7.411
Chlorobenzene-d5	10.960	10.954	10.954	10.960	10.954	10.954	10.956
1,4-Dichlorobenzene-d4	12.858	12.852	12.852	12.852	12.852	12.852	12.853

* indicates the retention time is greater than 30 seconds from the average RT.

Report generated on 08/05/2011 at 20:26.

INITIAL CALIBRATION VERIFICATION

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09685 ICV Date: 08/05/11 Time: 23:53

Lab File ID: ag05103.d Init. Calib. Date(s): 08/05/11 08/05/11

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: DB-624 ID: .25

	COMPOUND	RRF	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	Dichlorodifluoromethane	0.4110	0.3893	18.94	20	-5	
#	Chloromethane	0.3874	0.4223	21.80	20	9	#
*	Vinyl Chloride	0.3949	0.4258	21.56	20	8	*
	Bromomethane	0.2660	0.2237	16.82	20	-16	
	Chloroethane	0.2070	0.1928	18.63	20	-7	
	Trichlorofluoromethane	0.4712	0.5130	21.77	20	9	
	Ethanol	0.1185	0.1260	1062.90	1000	6	
	Freon 123a	0.3390	0.3378	19.93	20	0	
	Acrolein	1.8504	1.5375	124.64	150	-17	
*	1,1-Dichloroethene	0.2531	0.2553	20.17	20	1	*
	Dichlorofluoromethane	0.5504	0.5645	20.51	20	3	
	Freon 113	0.2691	0.2486	18.47	20	-8	
	Acetone	0.0295	0.0372	189.52	150	26	
	Methyl Iodide	0.4834	0.4327	17.90	20	-10	
	2-Propanol	0.7225	0.7201	149.51	150	0	
	Carbon Disulfide	0.8526	0.7227	16.95	20	-15	
	Allyl Chloride	0.3672	0.3470	18.90	20	-5	
	Methyl Acetate	0.1971	0.2651	26.90	20	34	
	Methylene Chloride	0.3125	0.3145	20.13	20	1	
	t-Butyl Alcohol	1.3104	1.5839	241.73	200	21	
	Acrylonitrile	0.1040	0.1173	112.74	100	13	
	trans-1,2-Dichloroethene	0.2928	0.2868	19.59	20	-2	
	Methyl Tertiary Butyl Ether	0.8414	0.7886	18.75	20	-6	
	n-Hexane	0.3825	0.3317	17.34	20	-13	
#	1,1-Dichloroethane	0.5059	0.4891	19.33	20	-3	#
	2-Chloro-1,3-Butadiene	0.4086	0.3671	17.96	20	-10	
	di-Isopropyl Ether	0.8368	0.7625	18.23	20	-9	
	Ethyl t-Butyl Ether	0.8574	0.7520	17.54	20	-12	
	cis-1,2-Dichloroethene	0.3264	0.3124	19.15	20	-4	
	1,2-Dichloroethene (total)	0.3096	0.2996	38.74	40	-3	
	2,2-Dichloropropane	0.4370	0.3974	18.18	20	-9	
	2-Butanone	0.1426	0.1557	163.84	150	9	
	Propionitrile	1.4327	1.5166	158.78	150	6	
	Methacrylonitrile	0.1362	0.1500	165.18	150	10	
	Bromochloromethane	0.1615	0.1598	19.79	20	-1	
	Tetrahydrofuran	1.3454	1.3826	102.76	100	3	

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

DHR12 0871

FORM VII VOA

INITIAL CALIBRATION VERIFICATION

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09685 ICV Date: 08/05/11 Time: 23:53

Lab File ID: ag05103.d Init. Calib. Date(s): 08/05/11 08/05/11

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: DB-624 ID: .25

	COMPOUND	RRF	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT	
*	Chloroform	0.5165	0.4957	19.19	20	-4	*
	1,1,1-Trichloroethane	0.5026	0.4678	18.61	20	-7	
	Cyclohexane	0.4644	0.4127	17.77	20	-11	
	1,1-Dichloropropene	0.4021	0.3815	18.97	20	-5	
	Carbon Tetrachloride	0.3945	0.3656	18.53	20	-7	
	Benzene	1.1791	1.1647	19.76	20	-1	
	Isobutyl Alcohol	0.3996	0.4438	555.24	500	11	
	1,2-Dichloroethane	0.4148	0.4123	19.88	20	-1	
	t-Amyl Methyl Ether	0.7922	0.6996	17.66	20	-12	
	n-Heptane	0.3874	0.3339	17.24	20	-14	
	n-Butanol	0.3685	0.3888	1054.90	1000	5	
	Trichloroethene	0.3184	0.2983	18.74	20	-6	
	Methylcyclohexane	0.5114	0.4978	19.47	20	-3	
*	1,2-Dichloropropane	0.3121	0.2923	18.73	20	-6	*
	Dibromomethane	0.2018	0.1961	19.44	20	-3	
	1,4-Dioxane	0.1425	0.1500	526.31	500	5	
	Methyl Methacrylate	0.2318	0.2164	18.67	20	-7	
	Bromodichloromethane	0.3832	0.3480	18.16	20	-9	
	2-Nitropropane	2.4963	2.0897	21.33	20	7	
	cis-1,3-Dichloropropene	0.4751	0.4211	17.73	20	-11	
	4-Methyl-2-Pentanone	0.3146	0.3320	105.52	100	6	
*	Toluene	0.9748	0.9137	18.75	20	-6	*
	trans-1,3-Dichloropropene	0.5822	0.5007	17.20	20	-14	
	Ethyl Methacrylate	0.5060	0.4604	18.19	20	-9	
	1,1,2-Trichloroethane	0.3524	0.3359	19.06	20	-5	
	Tetrachloroethene	0.4370	0.4130	18.90	20	-5	
	1,3-Dichloropropane	0.6061	0.5776	19.06	20	-5	
	2-Hexanone	0.3022	0.3063	90.50	100	-10	
	Dibromochloromethane	0.3846	0.3436	17.87	20	-11	
	1,2-Dibromoethane	0.3638	0.3524	19.37	20	-3	
#	Chlorobenzene	1.1280	1.0489	18.60	20	-7	#
	1,1,1,2-Tetrachloroethane	0.3829	0.3480	18.17	20	-9	
*	Ethylbenzene	1.8321	1.7339	18.93	20	-5	*
	m+p-Xylene	0.7232	0.6954	38.46	40	-4	
	Xylene (Total)	0.7229	0.5531	57.45	60	-4	
	o-Xylene	0.7223	0.6859	18.99	20	-5	

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

DHR12 6872

FORM VII VOA

INITIAL CALIBRATION VERIFICATION

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09685 ICV Date: 08/05/11 Time: 23:53

Lab File ID: ag05103.d Init. Calib. Date(s): 08/05/11 08/05/11

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: DB-624 ID: .25

	COMPOUND	RRF	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	Styrene	1.1422	1.0660	18.66	20	-7	
#	Bromoform	0.2758	0.2375	17.22	20	-14	#
	Isopropylbenzene	1.7926	1.7232	19.23	20	-4	
	Cyclohexanone	0.4246	0.3623	426.57	500	-15	
	Bromobenzene	0.8523	0.7988	18.74	20	-6	
#	1,1,2,2-Tetrachloroethane	0.8928	0.8712	19.52	20	-2	#
	1,2,3-Trichloropropane	0.2792	0.2739	19.62	20	-2	
	trans-1,4-Dichloro-2-Butene	0.2714	0.2976	109.67	100	10	
	n-Propylbenzene	3.6752	3.5842	19.50	20	-2	
	2-Chlorotoluene	0.8028	0.7531	18.76	20	-6	
	1,3,5-Trimethylbenzene	2.6491	2.5915	19.57	20	-2	
	4-Chlorotoluene	0.8303	0.7903	19.04	20	-5	
	tert-Butylbenzene	0.6300	0.5941	18.86	20	-6	
	Pentachloroethane	0.5238	0.4770	18.21	20	-9	
	1,2,4-Trimethylbenzene	2.8366	2.6984	19.03	20	-5	
	sec-Butylbenzene	3.3751	3.2703	19.38	20	-3	
	1,3-Dichlorobenzene	1.6330	1.5103	18.50	20	-8	
	p-Isopropyltoluene	3.0305	2.9271	19.32	20	-3	
	1,4-Dichlorobenzene	1.6819	1.5619	18.57	20	-7	
	1,2,3-Trimethylbenzene	2.8081	2.7468	19.56	20	-2	
	Benzyl Chloride	0.4114	0.3490	16.97	20	-15	
	1,2-Dichlorobenzene	1.6067	1.4932	18.59	20	-7	
	n-Butylbenzene	1.5719	1.5214	19.36	20	-3	
	1,3-Diethylbenzene	1.7519	1.7218	19.66	20	-2	
	1,4-Diethylbenzene	1.8399	1.8117	19.69	20	-2	
	1,2-Diethylbenzene	1.5340	1.4673	19.13	20	-4	
	1,2-Dibromo-3-Chloropropane	0.1877	0.1803	19.22	20	-4	
	1,3,5-Trichlorobenzene	1.3335	1.2326	18.49	20	-8	
	1,2,4-Trichlorobenzene	1.2983	1.1275	17.37	20	-13	
	Hexachlorobutadiene	0.6827	0.6074	17.79	20	-11	
	Naphthalene	3.3209	3.1311	18.86	20	-6	
	1,2,3-Trichlorobenzene	1.2343	1.1280	18.28	20	-9	
	2-Methylnaphthalene	2.1595	1.8004	16.67	20	-17	

Average %Drift 7

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

DHS12 8873

6A
VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09685 Calibration Date(s): 08/29/11 08/29/11

Heated Purge: (Y/N) Y Calibration Times: 17:17 19:12

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: DB-624 ID: .25

LAB FILE ID: RRF 4 = ag29i06.d RRF 10= ag29i05.d RRF 20= ag29i04.d
RRF 50= ag29i03.d RRF100= ag29i02.d RRF300= ag29i01.d RRF =

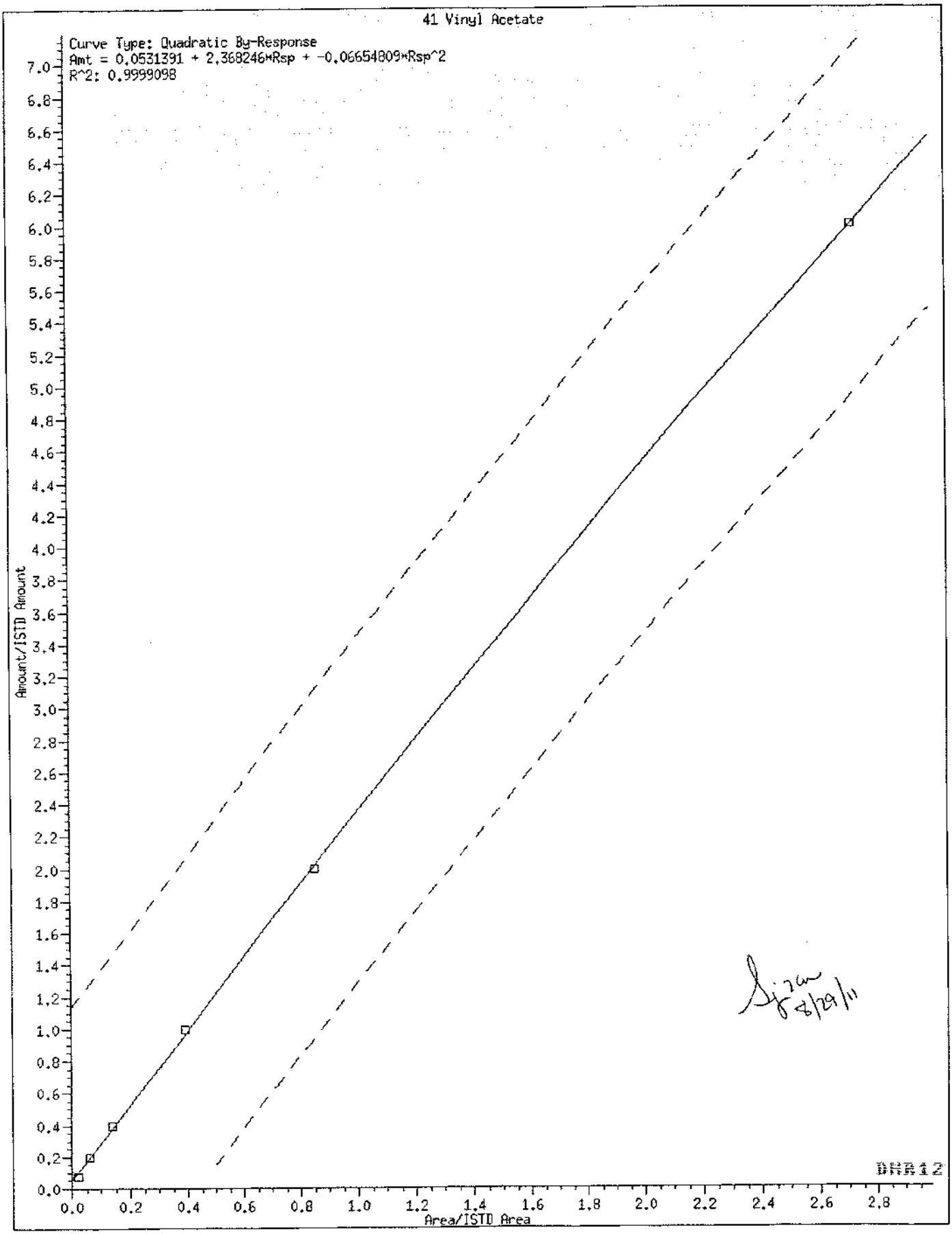
COMPOUND	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	$\overline{RRF}$	% RSD	CAL. METHOD
Chlorotrifluoroethene	0.3432	0.3254	0.3621	0.3727	0.3912	0.3837		0.3630	7	AVG
Freon 133a	0.6921	0.6188	0.6721	0.6553	0.6540	0.6050		0.6496	5	AVG
Ethyl Ether	0.2684	0.2711	0.2750	0.2825	0.2842	0.2780		0.2765	2	AVG
Acetonitrile	1.3758	1.4815	1.4215	1.4062	1.3994	1.3266		1.4018	4	AVG
Vinyl Acetate	0.2901	0.3112	0.3488	0.3920	0.4253	0.4530		0.3701	17	2NDDEG
Ethyl Acetate	0.2457	0.2624	0.2835	0.3110	0.3181	0.3406		0.2936	12	AVG
Isopropyl Acetate	0.3996	0.4404	0.4867	0.5406	0.5649	0.6073		0.5066	16	2NDDEG
n-Propyl Acetate	0.0857	0.0951	0.1112	0.1289	0.1375	0.1500		0.1181	21	2NDDEG
Epichlorohydrin	0.7957	0.7606	0.8301	0.8769	0.9756	0.9449		0.8640	10	AVG
3,4-Dichloro-1-Butene	0.2904	0.3037	0.3781	0.4229	0.4574	0.4963		0.3915	21	2NDDEG
Butyl Acetate	0.4340	0.5045	0.6019	0.6664	0.7122	0.7196		0.6064	19	1STDEG
cis-1,4-Dichloro-2-Butene	0.1052	0.1095	0.1486	0.1747	0.1883	0.2216		0.1580	29	2NDDEG
2,3,4-Trichlorobutene	0.4833	0.4874	0.6198	0.6697	0.7234	0.7759		0.6266	19	2NDDEG

Average %RSD 14

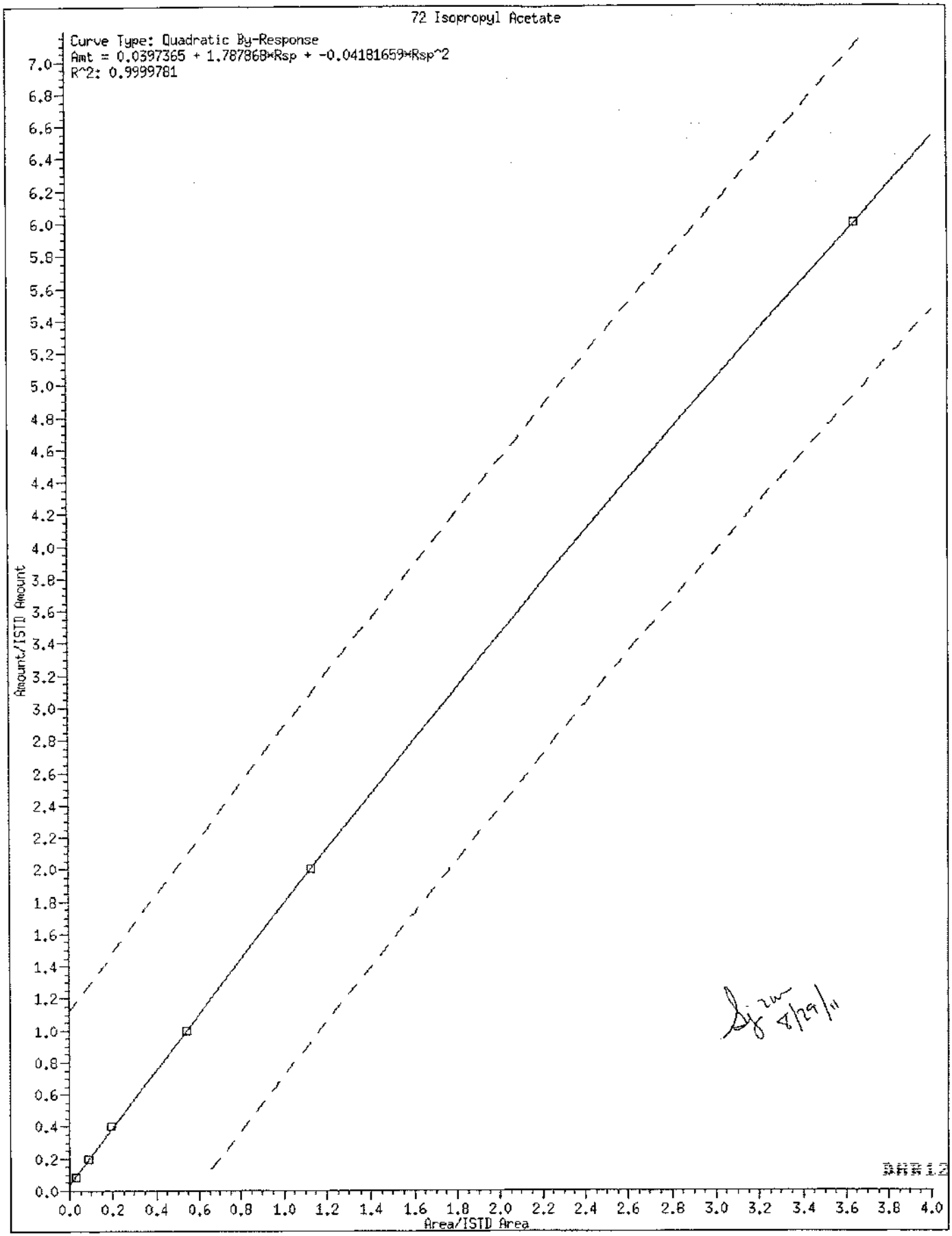
Minimum RRF for SPCC(#) = 0.10
(0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %RSD for CCC(*) = 30%

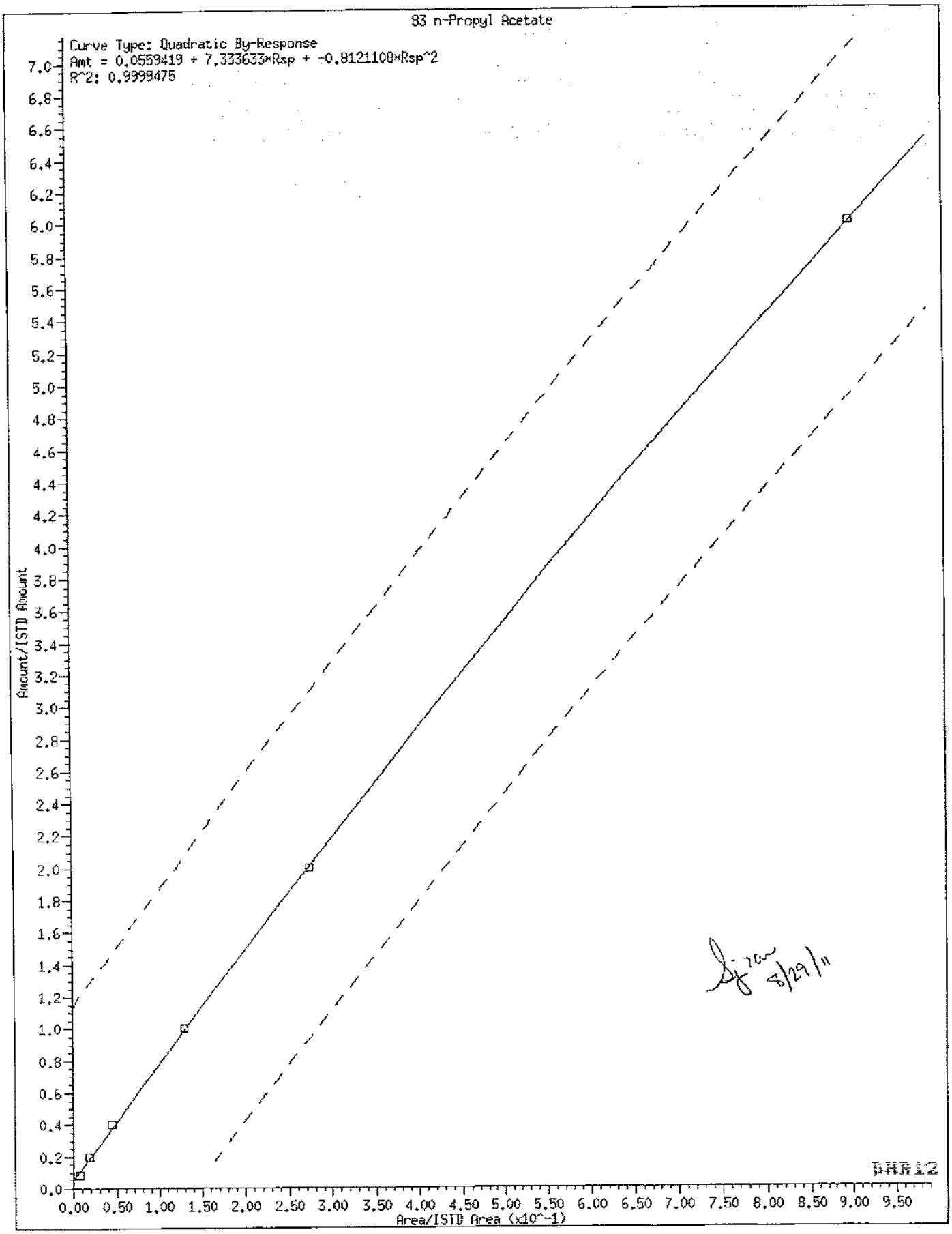
DNR12 8874

FORM VI VOA

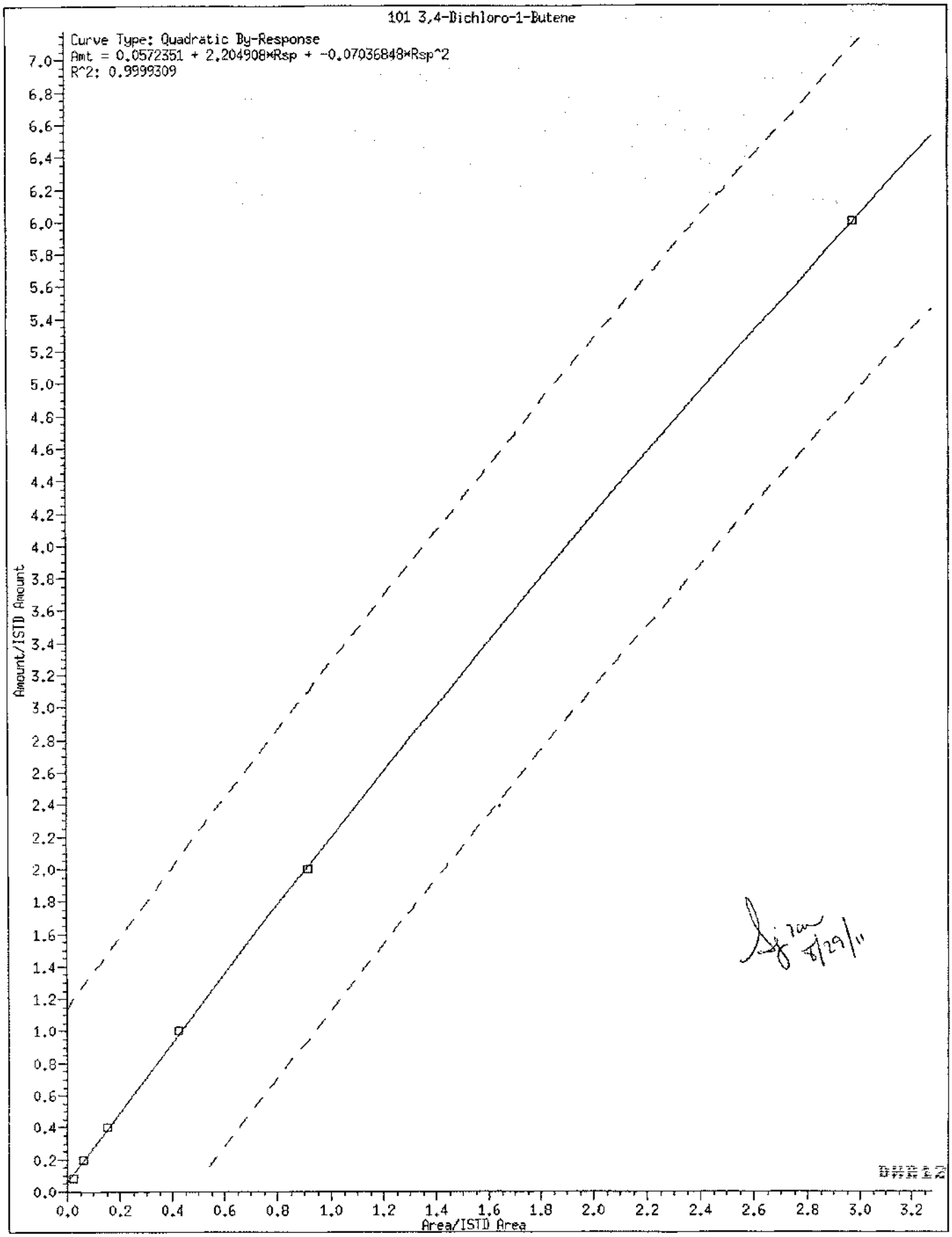

41 Vinyl Acetate
Curve Type: Quadratic By-Response
Amt = 0.0531391 + 2.368246*Rsp + -0.06654809*Rsp^2
R^2: 0.9999098
Amount/ISTD Amount
Area/ISTD Area
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2
2.4
2.6
2.8
3.0
3.2
3.4
3.6
3.8
4.0
4.2
4.4
4.6
4.8
5.0
5.2
5.4
5.6
5.8
6.0
6.2
6.4
6.6
6.8
7.0

8/29/11


72 Isopropyl Acetate
Curve Type: Quadratic By-Response
Amt = 0.0397365 + 1.787868*Rsp + -0.04181659*Rsp^2
R^2: 0.9999781
Amount/ISTD Amount
Area/ISTD Area
0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0 2.2 2.4 2.6 2.8 3.0 3.2 3.4 3.6 3.8 4.0
0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0 2.2 2.4 2.6 2.8 3.0 3.2 3.4 3.6 3.8 4.0 4.2 4.4 4.6 4.8 5.0 5.2 5.4 5.6 5.8 6.0 6.2 6.4 6.6 6.8 7.0
8/29/11


83 n-Propyl Acetate
Curve Type: Quadratic By-Response
Amt = 0.0559419 + 7.333633*Rsp + -0.8121108*Rsp^2
R^2: 0.9999475
Amount/ISTD Amount
Area/ISTD Area (x10^-1)
8/29/11

DHR12 0877


101 3,4-Dichloro-1-Butene
Curve Type: Quadratic By-Response
Amt = 0.0572351 + 2.204908*Rsp + -0.07036848*Rsp^2
R^2: 0.9999309
Amount/ISTD Amount
Area/ISTD Area
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2
2.4
2.6
2.8
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3.4
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4.8
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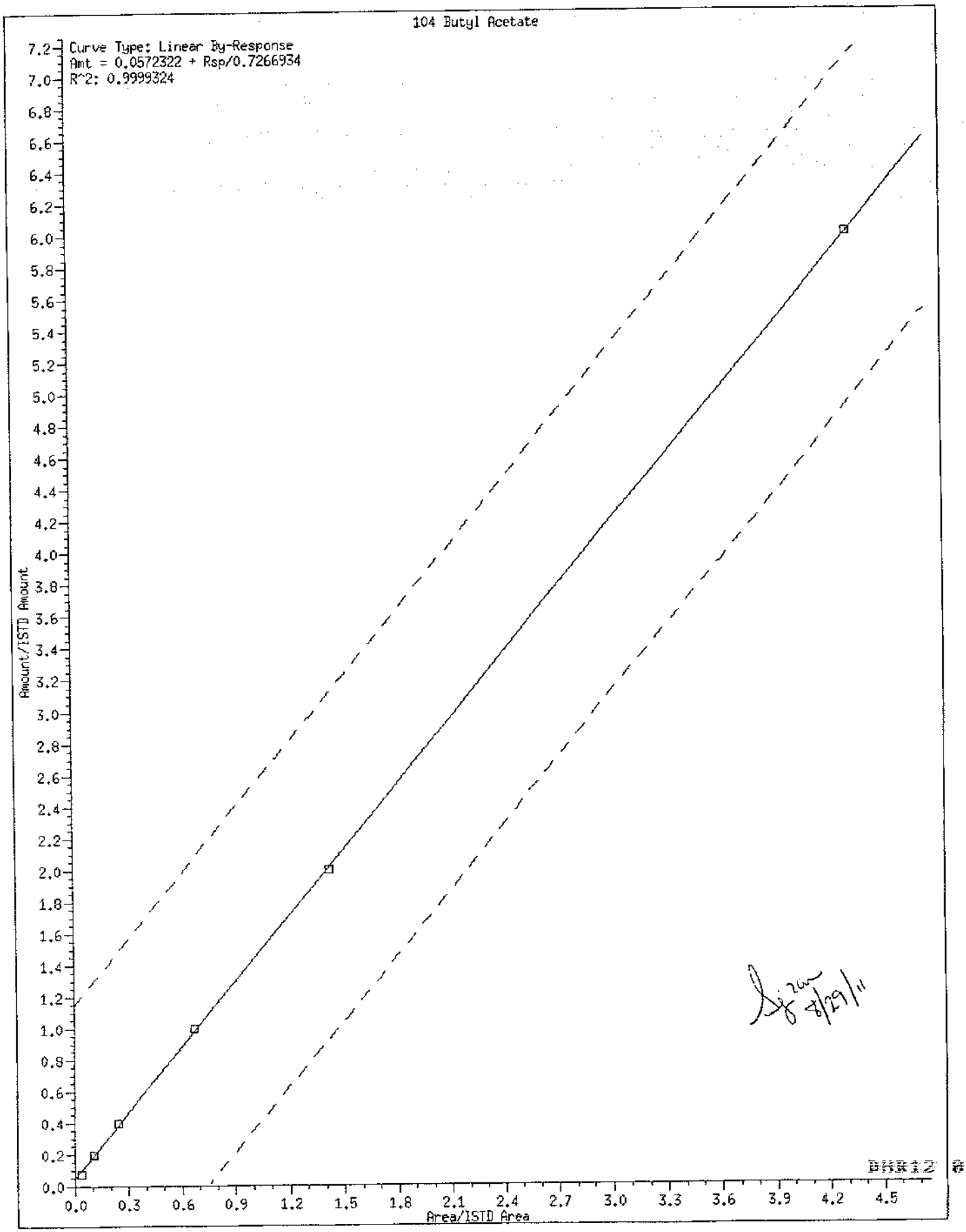
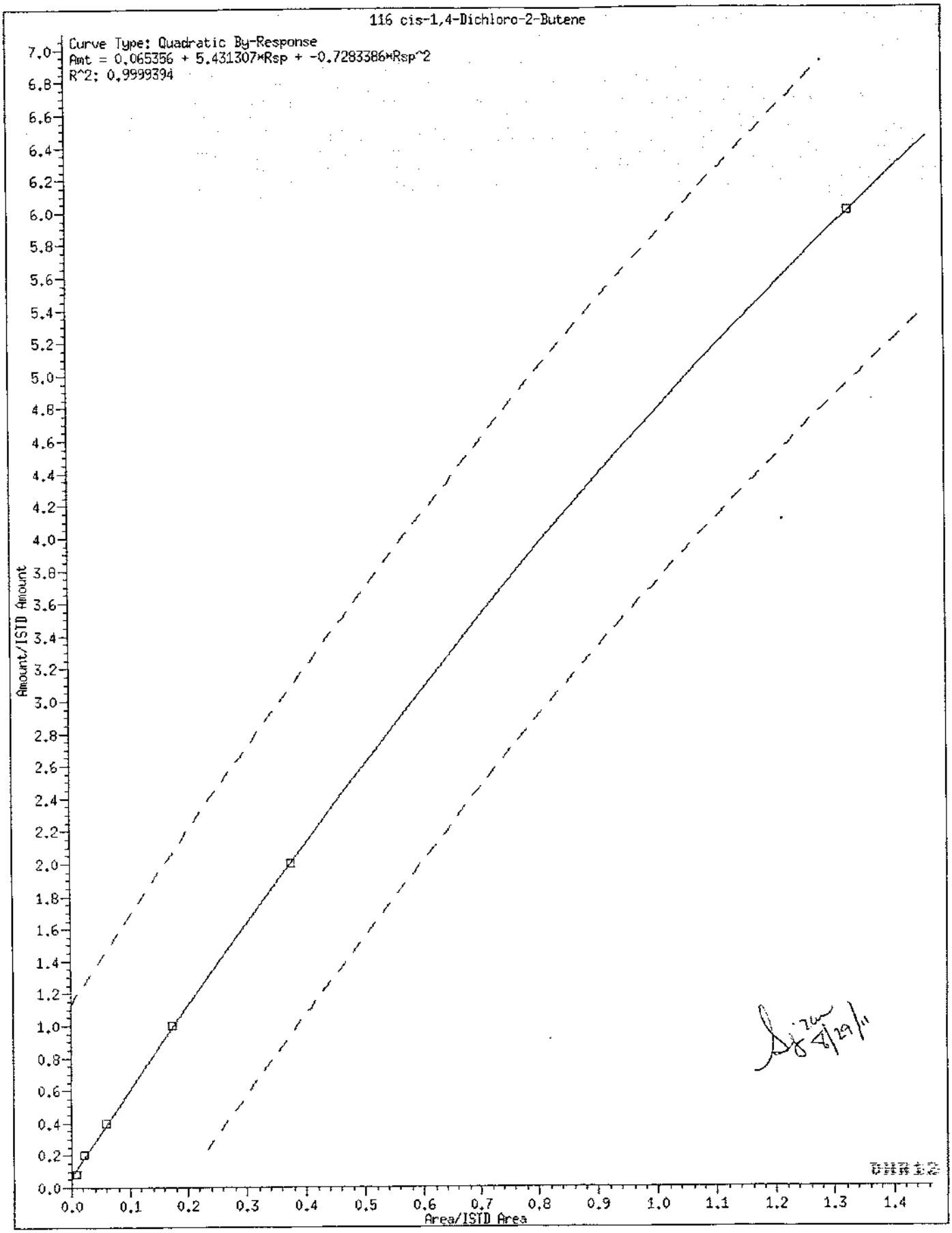
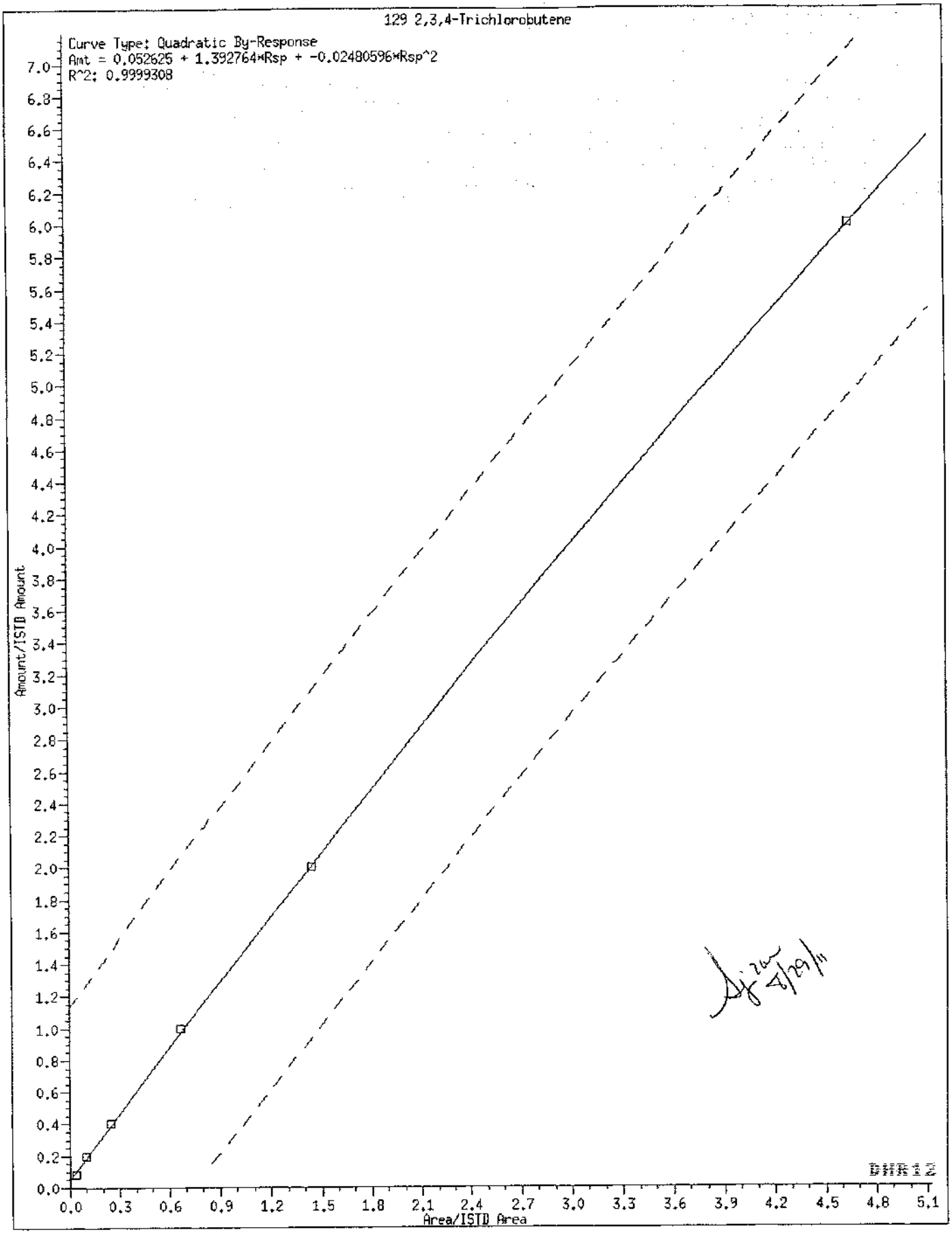
7.0

8/29/11


104 Butyl Acetate
Curve Type: Linear By-Response
Amt = 0.0572322 + Rsp/0.7266934
R^2: 0.9999324
Amount/ISTD Amount
Area/ISTD Area
8/29/11

DHR12 0079


116 cis-1,4-Dichloro-2-Butene
Curve Type: Quadratic By-Response
Amt = 0.065356 + 5.431307*Rsp + -0.7283386*Rsp^2
R^2: 0.9999394
Amount/ISTD Amount
Area/ISTD Area
8/29/11


129 2,3,4-Trichlorobutene
Curve Type: Quadratic By-Response
Amt = 0.052625 + 1.392764*Rsp + -0.02480596*Rsp^2
R^2: 0.9999308
Amount/ISTD Amount
Area/ISTD Area
0.0 0.3 0.6 0.9 1.2 1.5 1.8 2.1 2.4 2.7 3.0 3.3 3.6 3.9 4.2 4.5 4.8 5.1
0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0 2.2 2.4 2.6 2.8 3.0 3.2 3.4 3.6 3.8 4.0 4.2 4.4 4.6 4.8 5.0 5.2 5.4 5.6 5.8 6.0 6.2 6.4 6.6 6.8 7.0

Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem2/HP09685.i/11aug29a.b/ag29i01.d VSTD300
/chem2/HP09685.i/11aug29a.b/ag29i02.d VSTD100
/chem2/HP09685.i/11aug29a.b/ag29i03.d VSTD050
/chem2/HP09685.i/11aug29a.b/ag29i04.d VSTD020
/chem2/HP09685.i/11aug29a.b/ag29i05.d VSTD010
/chem2/HP09685.i/11aug29a.b/ag29i06.d VSTD004

Area Summary

File ID:

Internal Standard Name	ag29i01.d	ag29i02.d	ag29i03.d	ag29i04.d	ag29i05.d	ag29i06.d	Avg. Area	%RSD	In Spec
t-Butyl Alcohol-d10	175575	153869	162392	154002	147625	131964	154238	9	Yes
Fluorobenzene	1084492	1060768	1052083	1034536	1020344	1007896	1043353	3	Yes
Chlorobenzene-d5	829237	808185	803706	791287	780209	775922	798091	2	Yes
1,4-Dichlorobenzene-d4	474788	451507	448711	444550	433345	432409	447552	3	Yes

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

File ID:

Internal Standard Name	ag29i01.d	ag29i02.d	ag29i03.d	ag29i04.d	ag29i05.d	ag29i06.d	Avg. RT
t-Butyl Alcohol-d10	3.958	3.951	3.952	3.958	3.952	3.939	3.952
Fluorobenzene	7.413	7.413	7.413	7.413	7.413	7.407	7.412
Chlorobenzene-d5	10.954	10.954	10.954	10.954	10.954	10.954	10.954
1,4-Dichlorobenzene-d4	12.852	12.852	12.852	12.852	12.852	12.852	12.852

* indicates the retention time is greater than 30 seconds from the average RT.

Report generated on 08/29/2011 at 21:32.

INITIAL CALIBRATION VERIFICATION

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09685 ICV Date: 08/29/11 Time: 22:01

Lab File ID: ag29103.d Init. Calib. Date(s): 08/29/11 08/29/11

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: DB-624 ID: .25

COMPOUND	$\overline{RRF}$	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT
Chlorotrifluoroethene	0.3630	0.2191	12.07	20	-40
Freon 133a	0.6496	0.5472	16.85	20	-16
Ethyl Ether	0.2765	0.2251	16.28	20	-19
Acetonitrile	1.4018	1.2635	135.20	150	-10
Vinyl Acetate	0.3701	0.4936	116.32	100	16
Ethyl Acetate	0.2936	0.2931	19.97	20	0
Isopropyl Acetate	0.5066	0.4897	19.42	20	-3
n-Propyl Acetate	0.1181	0.1142	19.46	20	-3
Epichlorohydrin	0.8640	0.7623	35.29	40	-12
3,4-Dichloro-1-Butene	0.3915	0.3756	19.34	20	-3
Butyl Acetate	0.6064	0.5821	18.88	20	-6
cis-1,4-Dichloro-2-Butene	0.1580	0.1673	47.67	50	-5
2,3,4-Trichlorobutene	0.6266	0.6010	19.30	20	-3

Average %Drift 11

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

BWB12 8883

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP07566 Calibration Date(s): 10/18/11 10/18/11

Heated Purge: (Y/N) N Calibration Times: 07:53 09:48

Matrix: (soil/water) SOIL Level: (low/med) MED GC Column: DB-624 ID: .25

LAB FILE ID: RRF 4 = rc18i16.d RRF 10= rc18i15.d RRF 20= rc18i14.d
RRF 50= rc18i13.d RRF100= rc18i12.d RRF300= rc18i11.d RRF =

COMPOUND	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	RRF	% RSD	CAL. METHOD	
Dichlorodifluoromethane	0.3817	0.3718	0.3422	0.3680	0.3503	0.3609		0.3625	4	AVG	
Chloromethane	#0.3852	0.3785	0.3486	0.3500	0.3246	0.3410		0.3546	6	AVG	#
Vinyl Chloride	*0.3713	0.3694	0.3365	0.3447	0.3224	0.3187		0.3438	7	AVG	*
Bromomethane	6.7928	5.6336	5.3756	5.0617	4.8662	4.7629		5.4155	14	AVG	
Chloroethane	4.1601	3.7516	3.3154	3.1801	3.1770	3.0478		3.4387	12	AVG	
Dichlorofluoromethane	0.3695	0.3574	0.3365	0.3260	0.3168	0.3143		0.3367	7	AVG	
Trichlorofluoromethane	0.4267	0.4022	0.3793	0.3771	0.3744	0.3776		0.3895	5	AVG	
Ethanol	0.1119	0.1025	0.1031	0.0995	0.0991	0.0947		0.1018	6	AVG	
Freon 123a	0.2976	0.2569	0.2524	0.2315	0.2270	0.2242		0.2483	11	AVG	
Acrolein	2.4228	2.2538	2.1179	2.0219	1.9923	1.7538		2.0937	11	AVG	
1,1-Dichloroethene	*0.2260	0.2096	0.2041	0.1988	0.1959	0.1923		0.2045	6	AVG	*
Freon 113	0.1889	0.1761	0.1751	0.1752	0.1783	0.1758		0.1782	3	AVG	
Acetone	0.0275	0.0287	0.0259	0.0255	0.0243	0.0229		0.0258	8	AVG	
Methyl Iodide	0.3627	0.3636	0.3515	0.3498	0.3446	0.3432		0.3526	2	AVG	
2-Propanol	0.8779	0.9864	0.9057	0.7983	0.7904	0.6518		0.8351	14	AVG	
Carbon Disulfide	0.6717	0.6673	0.6567	0.6582	0.6685	0.6630		0.6642	1	AVG	
Allyl Chloride	0.4059	0.3950	0.3679	0.3735	0.3778	0.3738		0.3823	4	AVG	
Methyl Acetate	0.2225	0.2027	0.2049	0.2096	0.2037	0.1996		0.2072	4	AVG	
Methylene Chloride	0.2614	0.2569	0.2491	0.2435	0.2400	0.2387		0.2482	4	AVG	
t-Butyl Alcohol	1.2588	1.2878	1.3286	1.2322	1.2171	1.0072		1.2219	9	AVG	
Acrylonitrile	0.1176	0.1161	0.1152	0.1154	0.1122	0.1093		0.1143	3	AVG	
trans-1,2-Dichloroethene	0.2516	0.2462	0.2400	0.2331	0.2326	0.2300		0.2389	4	AVG	
Methyl Tertiary Butyl Ether	0.7694	0.7785	0.7476	0.7319	0.7369	0.7332		0.7496	3	AVG	
n-Hexane	0.2117	0.1959	0.2043	0.2088	0.2155	0.2121		0.2080	3	AVG	
1,1-Dichloroethane	#0.4668	0.4651	0.4713	0.4476	0.4488	0.4573		0.4595	2	AVG	#
di-Isopropyl Ether	0.9114	0.9020	0.8854	0.8608	0.8588	0.8326		0.8752	3	AVG	
2-Chloro-1,3-Butadiene	0.4084	0.4011	0.3938	0.3908	0.3995	0.4018		0.3992	2	AVG	
Ethyl t-Butyl Ether	0.8602	0.8603	0.8457	0.8303	0.8383	0.8204		0.8425	2	AVG	
cis-1,2-Dichloroethene	0.2726	0.2751	0.2665	0.2577	0.2593	0.2556		0.2645	3	AVG	
1,2-Dichloroethene (total)	0.2621	0.2607	0.2532	0.2454	0.2460	0.2428		0.2517	3	AVG	
2,2-Dichloropropane	0.3743	0.3719	0.3680	0.3605	0.3703	0.3843		0.3715	2	AVG	
2-Butanone	0.1645	0.1523	0.1453	0.1444	0.1406	0.1287		0.1460	8	AVG	
2-Butanone(mz72)	0.0382	0.0362	0.0364	0.0367	0.0359	0.0335		0.0361	4	AVG	
Propionitrile	0.0434	0.0438	0.0445	0.0434	0.0438	0.0414		0.0434	2	AVG	
Methacrylonitrile	0.1219	0.1235	0.1246	0.1216	0.1207	0.1187		0.1218	2	AVG	
Bromochloromethane	0.1169	0.1233	0.1204	0.1242	0.1247	0.1236		0.1222	2	AVG	
Tetrahydrofuran	1.3617	1.3097	1.3843	1.3127	1.3087	1.2492		1.3211	4	AVG	
Chloroform	*0.4323	0.4295	0.4319	0.4239	0.4294	0.4415		0.4314	1	AVG	*
1,1,1-Trichloroethane	0.4385	0.3844	0.3885	0.3655	0.3749	0.3879		0.3899	7	AVG	
Cyclohexane	0.3650	0.3362	0.3341	0.3261	0.3368	0.3333		0.3386	4	AVG	
Cyclohexane(mz84)	0.2972	0.2724	0.2695	0.2665	0.2756	0.2747		0.2760	4	AVG	
Cyclohexane(mz69)	0.1136	0.1000	0.1008	0.0992	0.1019	0.1015		0.1028	5	AVG	
1,1-Dichloropropene	0.3457	0.3352	0.3390	0.3301	0.3343	0.3364		0.3368	2	AVG	
Carbon Tetrachloride	0.2718	0.2730	0.2814	0.2827	0.2942	0.3095		0.2854	5	AVG	
Isobutyl Alcohol	0.4549	0.4519	0.4651	0.4296	0.4353	0.3690		0.4343	8	AVG	
Benzene	1.0601	1.0347	1.0303	1.0006	1.0024	0.9825		1.0185	3	AVG	
1,2-Dichloroethane(mz98)	0.0300	0.0305	0.0328	0.0321	0.0319	0.0310		0.0314	3	AVG	
1,2-Dichloroethane	0.3651	0.3614	0.3700	0.3555	0.3656	0.3811		0.3664	2	AVG	
t-Amyl Methyl Ether	0.7741	0.7683	0.7882	0.7586	0.7687	0.7632		0.7702	1	AVG	
n-Heptane	0.2392	0.2053	0.2193	0.2237	0.2272	0.2186		0.2222	5	AVG	
n-Butanol	0.3537	0.3729	0.4104	0.3797	0.3879	0.3221		0.3711	8	AVG	
Trichloroethene	0.2634	0.2531	0.2553	0.2494	0.2523	0.2481		0.2536	2	AVG	

Minimum RRF for SPCC(#) = 0.10
(0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %RSD for CCC(*) = 30%

DHR12 8884

6A
VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP07566 Calibration Date(s): 10/18/11 10/18/11

Heated Purge: (Y/N) N Calibration Times: 07:53 09:48

Matrix: (soil/water) SOIL Level: (low/med) MED GC Column: DB-624 ID: .25

LAB FILE ID: RRF 4 = rc18i16.d RRF 10= rc18i15.d RRF 20= rc18i14.d
RRF 50= rc18i13.d RRF100= rc18i12.d RRF300= rc18i11.d RRF =

COMPOUND	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	$\overline{RRF}$	% RSD	CAL. METHOD	
Methylcyclohexane	0.2643	0.2605	0.2536	0.2513	0.2611	0.2537		0.2574	2	AVG	
1,2-Dichloropropane	*0.2839	0.2827	0.2857	0.2776	0.2784	0.2711		0.2799	2	AVG	*
Dibromomethane	0.1614	0.1614	0.1694	0.1633	0.1664	0.1659		0.1646	2	AVG	
Methyl Methacrylate	0.2049	0.2157	0.2302	0.2215	0.2263	0.2201		0.2198	4	AVG	
1,4-Dioxane	0.1415	0.1397	0.1509	0.1385	0.1380	0.1210		0.1383	7	AVG	
Bromodichloromethane	0.2980	0.3173	0.3307	0.3246	0.3444	0.3487		0.3273	6	AVG	
2-Nitropropane	1.0498	0.9811	1.0176	1.0005	1.0194	1.0014		1.0116	2	AVG	
2-Chloroethyl Vinyl Ether	0.1743	0.1867	0.1913	0.1991	0.1956	0.1887		0.1893	5	AVG	
cis-1,3-Dichloropropene	0.4088	0.4226	0.4435	0.4374	0.4480	0.4476		0.4346	4	AVG	
4-Methyl-2-Pentanone	0.3773	0.3423	0.3450	0.3370	0.3297	0.2885		0.3366	9	AVG	
Toluene	*0.9026	0.8854	0.8878	0.8513	0.8636	0.8478		0.8731	3	AVG	*
trans-1,3-Dichloropropene	0.4988	0.5363	0.5779	0.5738	0.6083	0.6026		0.5663	7	AVG	
Ethyl Methacrylate	0.4855	0.4941	0.5766	0.5461	0.5660	0.5249		0.5322	7	AVG	
1,1,2-Trichloroethane	0.3243	0.3275	0.3423	0.3276	0.3339	0.3163		0.3286	3	AVG	
Tetrachloroethene	0.3225	0.3087	0.3102	0.3036	0.3083	0.3139		0.3112	2	AVG	
1,3-Dichloropropane	0.5828	0.5898	0.6172	0.5945	0.6044	0.5754		0.5940	3	AVG	
2-Hexanone	0.4407	0.3581	0.3643	0.3705	0.3436	0.2903		0.3612	13	AVG	
Dibromochloromethane	0.2950	0.3117	0.3533	0.3554	0.3771	0.3703		0.3438	10	AVG	
1,2-Dibromoethane	0.3332	0.3344	0.3599	0.3466	0.3552	0.3435		0.3455	3	AVG	
Chlorobenzene	#0.9855	0.9449	0.9885	0.9477	0.9747	0.9288		0.9617	3	AVG	#
1,1,1,2-Tetrachloroethane	0.3008	0.3063	0.3398	0.3270	0.3544	0.3437		0.3287	7	AVG	
Ethylbenzene	*1.5836	1.5311	1.5872	1.5489	1.6059	1.5112		1.5613	2	AVG	*
m+p-Xylene	0.6201	0.5829	0.6038	0.5840	0.6020	0.5717		0.5941	3	AVG	
Xylene (Total)	0.6134	0.5845	0.6046	0.5829	0.6039	0.5719		0.5935	3	AVG	
o-Xylene	0.6001	0.5877	0.6063	0.5806	0.6076	0.5722		0.5924	2	AVG	
Styrene	1.0264	1.0065	1.0903	1.0495	1.1104	1.0225		1.0509	4	AVG	
Bromoform	#0.1792	0.1945	0.2433	0.2456	0.2744	0.2661		0.2339	17	1STDEG	#
Isopropylbenzene	1.3718	1.3190	1.3732	1.3063	1.4029	1.2964		1.3449	3	AVG	
Cyclohexanone	0.3760	0.3609	0.3814	0.3907	0.3893	0.3931		0.3819	3	AVG	
1,1,2,2-Tetrachloroethane	#1.0016	0.9807	1.1642	1.0288	1.1042	0.8981		1.0296	9	AVG	#
Bromobenzene	0.8439	0.8290	0.8901	0.8389	0.8960	0.8047		0.8504	4	AVG	
1,2,3-Trichloropropane	0.2868	0.2866	0.3304	0.2922	0.3116	0.2618		0.2949	8	AVG	
trans-1,4-Dichloro-2-Butene	0.3359	0.3507	0.3617	0.3316	0.3568	0.3024		0.3399	6	AVG	
n-Propylbenzene	3.3761	3.2145	3.3489	3.2079	3.3746	2.9249		3.2411	5	AVG	
2-Chlorotoluene	0.7227	0.6951	0.7370	0.6976	0.7416	0.6650		0.7098	4	AVG	
1,3,5-Trimethylbenzene	2.4088	2.3269	2.4303	2.3324	2.4791	2.1797		2.3595	4	AVG	
4-Chlorotoluene	0.7787	0.7464	0.7939	0.7645	0.8098	0.7193		0.7688	4	AVG	
tert-Butylbenzene	0.5081	0.4974	0.5191	0.5005	0.5297	0.4681		0.5038	4	AVG	
Pentachloroethane	0.4092	0.4540	0.4502	0.4797	0.5253	0.5029		0.4702	9	AVG	
1,2,4-Trimethylbenzene	2.4969	2.4684	2.5985	2.4871	2.6593	2.3330		2.5072	5	AVG	
sec-Butylbenzene	2.6534	2.5661	2.6904	2.5963	2.7412	2.3466		2.5990	5	AVG	
1,3-Dichlorobenzene	1.3559	1.3131	1.4327	1.3488	1.4622	1.3001		1.3688	5	AVG	
p-Isopropyltoluene	2.2518	2.2002	2.3430	2.2878	2.4367	2.1287		2.2747	5	AVG	
1,4-Dichlorobenzene	1.5409	1.4727	1.5664	1.4549	1.5729	1.3854		1.4988	5	AVG	
1,2,3-Trimethylbenzene	2.6087	2.5864	2.5078	2.5306	2.6219	2.4061		2.5436	3	AVG	
Benzyl Chloride	1.6115	1.7408	2.1723	2.0975	2.3253	2.0194		1.9945	14	AVG	
n-Butylbenzene	1.1136	1.1221	1.1731	1.1218	1.2133	1.0379		1.1303	5	AVG	
1,2-Dichlorobenzene	1.3957	1.3526	1.4693	1.3542	1.4767	1.3084		1.3928	5	AVG	
1,3-Diethylbenzene	1.3644	1.3642	1.3035	1.3088	1.3848	1.2731		1.3332	3	AVG	
1,4-Diethylbenzene	1.3060	1.2732	1.2632	1.2456	1.3104	1.1976		1.2660	3	AVG	
1,2-Diethylbenzene	1.4096	1.3858	1.3191	1.3065	1.3803	1.2657		1.3445	4	AVG	
1,2-Dibromo-3-Chloropropane	0.1814	0.1777	0.2244	0.2058	0.2276	0.2023		0.2032	10	AVG	

Minimum RRF for SPCC(#) = 0.10
(0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %RSD for CCC(*) = 30%

DHR12 8885

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP07566 Calibration Date(s): 10/18/11 10/18/11

Heated Purge: (Y/N) N Calibration Times: 07:53 09:48

Matrix: (soil/water) SOIL Level: (low/med) MED GC Column: DB-624 ID: .25

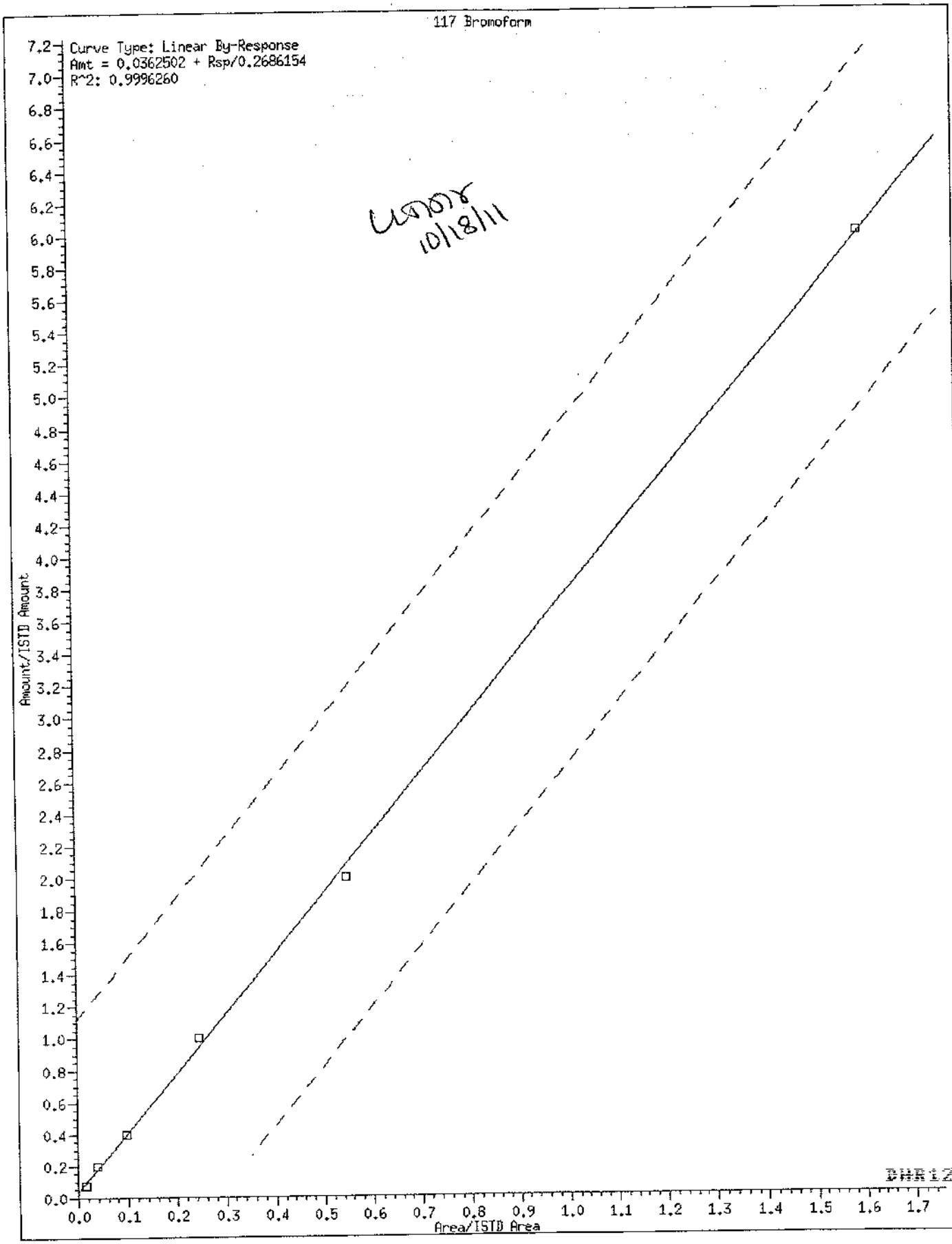
LAB FILE ID: RRF 4 = rc18i16.d RRF 10= rc18i15.d RRF 20= rc18i14.d
RRF 50= rc18i13.d RRF100= rc18i12.d RRF300= rc18i11.d RRF =

COMPOUND	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	$\overline{RRF}$	% RSD	CAL. METHOD
1,3,5-Trichlorobenzene	0.9068	0.8747	0.9515	0.8962	0.9816	0.8441		0.9092	6	AVG
1,2,4-Trichlorobenzene	0.8540	0.8429	0.9202	0.8496	0.9367	0.8055		0.8682	6	AVG
Hexachlorobutadiene	0.5145	0.4694	0.4792	0.4348	0.4437	0.3627		0.4507	11	AVG
Naphthalene	2.8277	2.7098	3.1350	2.8324	3.0330	2.4887		2.8378	8	AVG
1,2,3-Trichlorobenzene	0.8688	0.8072	0.9180	0.8399	0.9107	0.7614		0.8510	7	AVG
2-Methylnaphthalene	1.4558	1.4287	1.4450	1.4484	1.5526	1.2487		1.4299	7	AVG
Dibromofluoromethane	0.2270	0.2384	0.2202	0.2290	0.2432	0.2227		0.2301	4	AVG
Dibromofluoromethane(mz111)	0.2338	0.2437	0.2273	0.2354	0.2516	0.2292		0.2368	4	AVG
1,2-Dichloroethane-d4	0.0646	0.0617	0.0573	0.0574	0.0600	0.0551		0.0593	6	AVG
1,2-Dichloroethane-d4(mz104)	0.0385	0.0397	0.0353	0.0371	0.0386	0.0351		0.0374	5	AVG
1,2-Dichloroethane-d4(mz65)	0.3128	0.3057	0.2874	0.2953	0.3167	0.2984		0.3027	4	AVG
Toluene-d8	1.3655	1.3612	1.2791	1.2801	1.3617	1.2073		1.3091	5	AVG
Toluene-d8(mz100)	0.8986	0.8834	0.8301	0.8259	0.8827	0.7796		0.8501	5	AVG
4-Bromofluorobenzene	0.5136	0.4895	0.4576	0.5020	0.6579	0.4542		0.5125	15	AVG
4-Bromofluorobenzene(mz174)	0.3904	0.3786	0.3561	0.3885	0.5112	0.3572		0.3970	15	AVG

Average %RSD 5

Minimum RRF for SPCC(#) = 0.10
(0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %RSD for CCC(*) = 30%

DHR12 8856


117 Bromoform
Curve Type: Linear By-Response
Amt = 0.0362502 + Rsp/0.2686154
R^2: 0.9996260
Amount/ISTD Amount
Area/ISTD Area
10/18/11

Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem/HP07566.i/11oct18i.b/rc18i11.d VSTD300
/chem/HP07566.i/11oct18i.b/rc18i12.d VSTD100
/chem/HP07566.i/11oct18i.b/rc18i13.d VSTD050
/chem/HP07566.i/11oct18i.b/rc18i14.d VSTD020
/chem/HP07566.i/11oct18i.b/rc18i15.d VSTD010
/chem/HP07566.i/11oct18i.b/rc18i16.d VSTD004

Area Summary

File ID:

Internal Standard Name	rc18i11.d	rc18i12.d	rc18i13.d	rc18i14.d	rc18i15.d	rc18i16.d	Avg. Area	%RSD	In Spec
t-Butyl Alcohol-d10	191175	205641	202340	199578	204564	201076	200729	3	Yes
Fluorobenzene	1394052	1527766	1485355	1520581	1505364	1517280	1491733	3	Yes
Chlorobenzene-d5	1012856	1098465	1077628	1085525	1086071	1071268	1071969	3	Yes
1,4-Dichlorobenzene-d4	497494	520174	497627	498612	495892	493372	500528	2	Yes

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

File ID:

Internal Standard Name	rc18i11.d	rc18i12.d	rc18i13.d	rc18i14.d	rc18i15.d	rc18i16.d	Avg. RT
t-Butyl Alcohol-d10	4.016	4.006	3.990	3.987	3.996	3.993	3.998
Fluorobenzene	7.433	7.433	7.433	7.434	7.433	7.433	7.433
Chlorobenzene-d5	10.970	10.969	10.969	10.970	10.969	10.969	10.969
1,4-Dichlorobenzene-d4	12.863	12.859	12.859	12.860	12.859	12.859	12.860

* indicates the retention time is greater than 30 seconds from the average RT.

Report generated on 10/18/2011 at 10:25.

DHR12 8800.

INITIAL CALIBRATION VERIFICATION

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP07566 ICV Date: 10/18/11 Time: 10:33

Lab File ID: rc18v11.d Init. Calib. Date(s): 10/18/11 10/18/11

Matrix: (soil/water) SOIL Level: (low/med) MED GC Column: DB-624 ID: .25

	COMPOUND	RRF	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	Dichlorodifluoromethane	0.3625	0.2574	14.20	20	-29	
#	Chloromethane	0.3546	0.2853	16.09	20	-20	#
*	Vinyl Chloride	0.3438	0.2820	16.40	20	-18	*
	Bromomethane	5.4155	4.1357	15.27	20	-24	
	Chloroethane	3.4387	2.7494	15.99	20	-20	
	Dichlorofluoromethane	0.3367	0.3054	18.14	20	-9	
	Trichlorofluoromethane	0.3895	0.3432	17.62	20	-12	
	Ethanol	0.1018	0.0997	979.28	1000	-2	
	Freon 123a	0.2483	0.2393	19.28	20	-4	
	Acrolein	2.0937	2.0302	145.45	150	-3	
*	1,1-Dichloroethene	0.2045	0.2067	20.22	20	1	*
	Freon 113	0.1782	0.1918	21.53	20	8	
	Acetone	0.0258	0.0220	127.80	150	-15	
	Methyl Iodide	0.3526	0.3500	19.86	20	-1	
	2-Propanol	0.8351	0.7425	133.36	150	-11	
	Carbon Disulfide	0.6642	0.6321	19.03	20	-5	
	Allyl Chloride	0.3823	0.3990	20.87	20	4	
	Methyl Acetate	0.2072	0.2491	24.05	20	20	
	Methylene Chloride	0.2482	0.2574	20.73	20	4	
	t-Butyl Alcohol	1.2219	1.0797	176.72	200	-12	
	Acrylonitrile	0.1143	0.1083	94.78	100	-5	
	trans-1,2-Dichloroethene	0.2389	0.2406	20.14	20	1	
	Methyl Tertiary Butyl Ether	0.7496	0.7375	19.68	20	-2	
	n-Hexane	0.2080	0.2206	21.21	20	6	
#	1,1-Dichloroethane	0.4595	0.4706	20.48	20	2	#
	di-Isopropyl Ether	0.8752	0.8756	20.01	20	0	
	2-Chloro-1,3-Butadiene	0.3992	0.3968	19.88	20	-1	
	Ethyl t-Butyl Ether	0.8425	0.8444	20.04	20	0	
	cis-1,2-Dichloroethene	0.2645	0.2691	20.35	20	2	
	1,2-Dichloroethene (total)	0.2517	0.2548	40.49	40	1	
	2,2-Dichloropropane	0.3715	0.3653	19.66	20	-2	
	2-Butanone	0.1460	0.1311	134.77	150	-10	
	Propionitrile	0.0434	0.0430	148.73	150	-1	
	Methacrylonitrile	0.1218	0.1235	151.99	150	1	
	Bromochloromethane	0.1222	0.1310	21.45	20	7	
	Tetrahydrofuran	1.3211	1.3009	98.48	100	-2	

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

DHR12 8888

FORM VII VOA

INITIAL CALIBRATION VERIFICATION

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP07566 ICV Date: 10/18/11 Time: 10:33

Lab File ID: rc18v11.d Init. Calib. Date(s): 10/18/11 10/18/11

Matrix: (soil/water) SOIL Level: (low/med) MED GC Column: DB-624 ID: .25

	COMPOUND	RRF	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT	
*	Chloroform	0.4314	0.4294	19.91	20	0	*
	1,1,1-Trichloroethane	0.3899	0.3973	20.38	20	2	
	Cyclohexane	0.3386	0.3504	20.70	20	3	
	1,1-Dichloropropene	0.3368	0.3411	20.26	20	1	
	Carbon Tetrachloride	0.2854	0.2784	19.51	20	-2	
	Isobutyl Alcohol	0.4343	0.3572	411.18	500	-18	
	Benzene	1.0185	1.0259	20.15	20	1	
	1,2-Dichloroethane	0.3664	0.3642	19.88	20	-1	
	t-Amyl Methyl Ether	0.7702	0.7538	19.57	20	-2	
	n-Heptane	0.2222	0.2253	20.28	20	1	
	n-Butanol	0.3711	0.3018	813.27	1000	-19	
	Trichloroethene	0.2536	0.2500	19.71	20	-1	
	Methylcyclohexane	0.2574	0.2845	22.10	20	11	
*	1,2-Dichloropropane	0.2799	0.2795	19.98	20	0	*
	Dibromomethane	0.1646	0.1647	20.01	20	0	
	Methyl Methacrylate	0.2198	0.2059	18.73	20	-6	
	1,4-Dioxane	0.1383	0.1224	442.70	500	-11	
	Bromodichloromethane	0.3273	0.3168	19.36	20	-3	
	2-Nitropropane	1.0116	0.8906	17.61	20	-12	
	2-Chloroethyl Vinyl Ether	0.1893	0.1952	20.63	20	3	
	cis-1,3-Dichloropropene	0.4346	0.4270	19.65	20	-2	
	4-Methyl-2-Pentanone	0.3366	0.2854	84.77	100	-15	
*	Toluene	0.8731	0.8845	20.26	20	1	*
	trans-1,3-Dichloropropene	0.5663	0.5490	19.39	20	-3	
	Ethyl Methacrylate	0.5322	0.5328	20.02	20	0	
	1,1,2-Trichloroethane	0.3286	0.3268	19.89	20	-1	
	Tetrachloroethene	0.3112	0.3046	19.58	20	-2	
	1,3-Dichloropropane	0.5940	0.5844	19.68	20	-2	
	2-Hexanone	0.3612	0.2795	77.39	100	-23	
	Dibromochloromethane	0.3438	0.3221	18.74	20	-6	
	1,2-Dibromoethane	0.3455	0.3355	19.42	20	-3	
#	Chlorobenzene	0.9617	0.9445	19.64	20	-2	#
	1,1,1,2-Tetrachloroethane	0.3287	0.3105	18.89	20	-6	
*	Ethylbenzene	1.5613	1.5520	19.88	20	-1	*
	m+p-Xylene	0.5941	0.5975	40.23	40	1	
	Xylene (Total)	0.5935	0.4279	60.15	60	0	

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

BNB12 8898

FORM VII VOA

INITIAL CALIBRATION VERIFICATION

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP07566 ICV Date: 10/18/11 Time: 10:33

Lab File ID: rc18v11.d Init. Calib. Date(s): 10/18/11 10/18/11

Matrix: (soil/water) SOIL Level: (low/med) MED GC Column: DB-624 ID: .25

	COMPOUND	RRF	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	o-Xylene	0.5924	0.5899	19.92	20	0	
	Styrene	1.0509	1.0392	19.78	20	-1	
#	Bromoform	0.2339	0.2010	16.78	20	-16	#
	Isopropylbenzene	1.3449	1.3213	19.65	20	-2	
	Cyclohexanone	0.3819	0.3802	497.76	500	0	
#	1,1,2,2-Tetrachloroethane	1.0296	0.9398	18.26	20	-9	#
	Bromobenzene	0.8504	0.8158	19.19	20	-4	
	1,2,3-Trichloropropane	0.2949	0.2710	18.38	20	-8	
	trans-1,4-Dichloro-2-Butene	0.3399	0.3170	93.26	100	-7	
	n-Propylbenzene	3.2411	3.1927	19.70	20	-1	
	2-Chlorotoluene	0.7098	0.6854	19.31	20	-3	
	1,3,5-Trimethylbenzene	2.3595	2.3023	19.51	20	-2	
	4-Chlorotoluene	0.7688	0.7425	19.32	20	-3	
	tert-Butylbenzene	0.5038	0.4878	19.37	20	-3	
	Pentachloroethane	0.4702	0.4668	19.86	20	-1	
	1,2,4-Trimethylbenzene	2.5072	2.4454	19.51	20	-2	
	sec-Butylbenzene	2.5990	2.5076	19.30	20	-4	
	1,3-Dichlorobenzene	1.3688	1.2975	18.96	20	-5	
	p-Isopropyltoluene	2.2747	2.1700	19.08	20	-5	
	1,4-Dichlorobenzene	1.4988	1.4056	18.76	20	-6	
	1,2,3-Trimethylbenzene	2.5436	2.7189	21.38	20	7	
	Benzyl Chloride	1.9945	1.7406	17.45	20	-13	
	n-Butylbenzene	1.1303	1.0622	18.80	20	-6	
	1,2-Dichlorobenzene	1.3928	1.2992	18.65	20	-7	
	1,3-Diethylbenzene	1.3332	1.4047	21.07	20	5	
	1,4-Diethylbenzene	1.2660	1.2927	20.42	20	2	
	1,2-Diethylbenzene	1.3445	1.4016	20.85	20	4	
	1,2-Dibromo-3-Chloropropane	0.2032	0.1771	17.43	20	-13	
	1,3,5-Trichlorobenzene	0.9092	0.8139	17.91	20	-10	
	1,2,4-Trichlorobenzene	0.8682	0.7655	17.63	20	-12	
	Hexachlorobutadiene	0.4507	0.3368	14.95	20	-25	
	Naphthalene	2.8378	2.4911	17.56	20	-12	
	1,2,3-Trichlorobenzene	0.8510	0.7252	17.04	20	-15	
	2-Methylnaphthalene	1.4299	1.2632	17.67	20	-12	

Average %Drift 6

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

DHR12 #691

FORM VII VOA

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP07566 Calibration Date(s): 10/18/11 10/18/11

Heated Purge: (Y/N) N Calibration Times: 18:02 19:56

Matrix: (soil/water) SOIL Level: (low/med) MED GC Column: DB-624 ID: .25

LAB FILE ID: RRF 4 = rc18i35.d RRF 10= rc18i34.d RRF 20= rc18i33.d
RRF 50= rc18i32.d RRF100= rc18i31.d RRF300= rc18i30.d RRF =

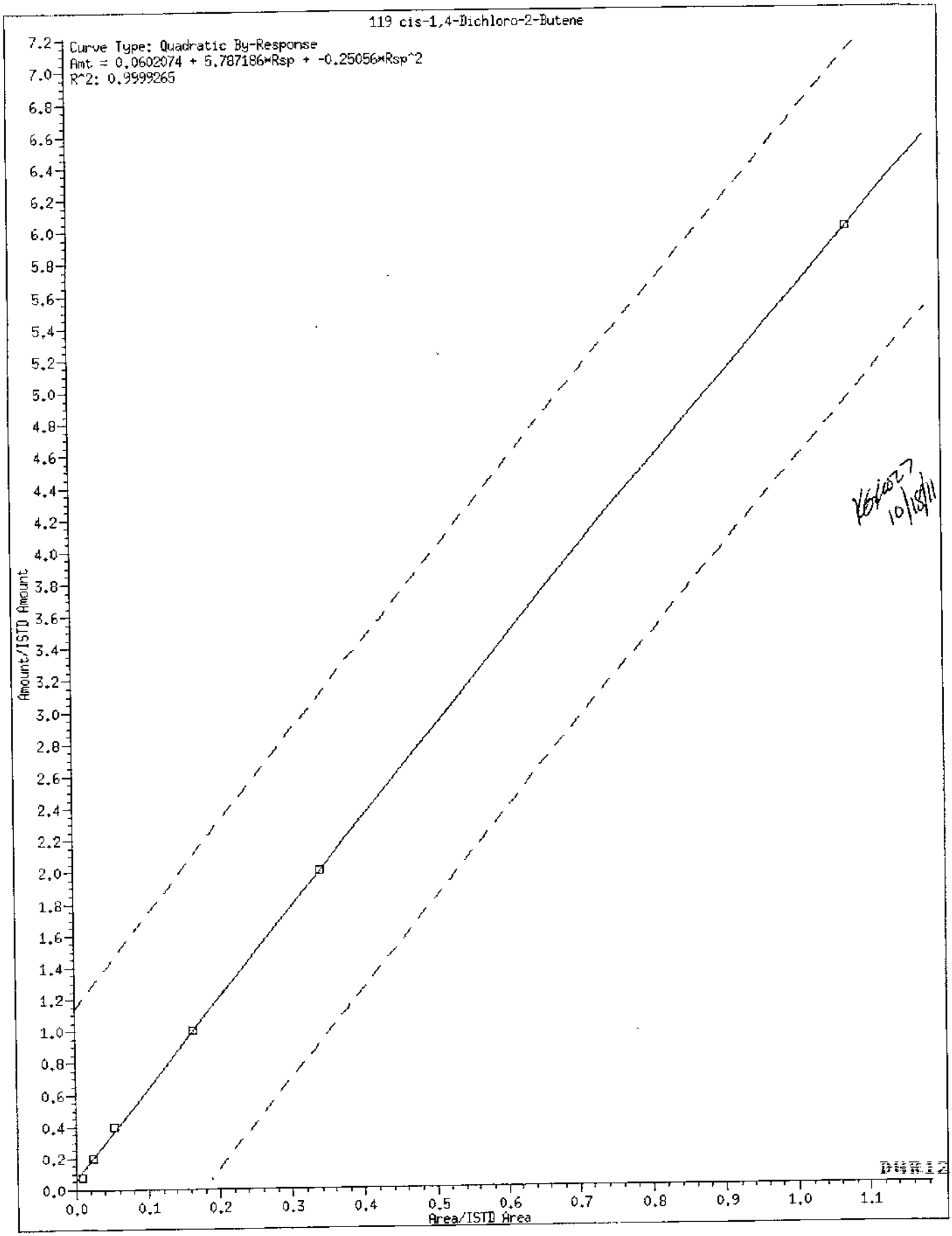
COMPOUND	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	$\overline{RRF}$	% RSD	CAL. METHOD
Chlorotrifluoroethene	0.2895	0.2906	0.3082	0.3398	0.3184	0.3002		0.3077	6	AVG
Freon 133a	0.5015	0.4767	0.5000	0.5381	0.5022	0.4644		0.4972	5	AVG
Ethyl Ether	0.2092	0.2091	0.2148	0.2043	0.1991	0.1866		0.2039	5	AVG
Acetonitrile	1.5372	1.4992	1.5244	1.5539	1.5068	1.4041		1.5043	4	AVG
Vinyl Acetate	0.3140	0.3653	0.3892	0.4511	0.4612	0.4594		0.4067	15	AVG
Ethyl Acetate	0.2701	0.2844	0.2737	0.3027	0.3027	0.2952		0.2881	5	AVG
Diethoxymethane	0.2448	0.2577	0.2583	0.2779	0.2821	0.2720		0.2655	5	AVG
Isopropyl Acetate	0.5178	0.5356	0.5201	0.5854	0.5922	0.5745		0.5543	6	AVG
n-Propyl Acetate	0.0923	0.1001	0.1013	0.1169	0.1226	0.1218		0.1092	12	AVG
3,4-Dichloro-1-Butene	0.3509	0.3586	0.3777	0.4471	0.4460	0.4540		0.4057	12	AVG
Butyl Acetate	0.5344	0.5752	0.5744	0.6711	0.6720	0.6629		0.6150	10	AVG
cis-1,4-Dichloro-2-Butene	0.1037	0.1195	0.1331	0.1636	0.1706	0.1794		0.1450	21	2NDDEG
2,3,4-Trichlorobutene	0.5895	0.6214	0.6706	0.7601	0.7751	0.7697		0.6977	12	AVG

Average %RSD 9

Minimum RRF for SPCC(#) = 0.10
(0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %RSD for CCC(*) = 30%

DHS12 8892

FORM VI VOA


119 cis-1,4-Dichloro-2-Butene
Curve Type: Quadratic By-Response
Amt = 0.0602074 + 5.787186*Rsp + -0.25056*Rsp^2
R^2: 0.9999265
Amount/ISTD Amount
Area/ISTD Area
7.2
7.0
6.8
6.6
6.4
6.2
6.0
5.8
5.6
5.4
5.2
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Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem/HP07566.i/11oct18h.b/rc18i30.d VSTD300
/chem/HP07566.i/11oct18h.b/rc18i31.d VSTD100
/chem/HP07566.i/11oct18h.b/rc18i32.d VSTD050
/chem/HP07566.i/11oct18h.b/rc18i33.d VSTD020
/chem/HP07566.i/11oct18h.b/rc18i34.d VSTD010
/chem/HP07566.i/11oct18h.b/rc18i35.d VSTD004

Area Summary

File ID:

Internal Standard Name	rc18i30.d	rc18i31.d	rc18i32.d	rc18i33.d	rc18i34.d	rc18i35.d	Avg. Area	%RSD	In Spec
t-Butyl Alcohol-d10	171792	163844	160490	157241	159286	156534	161531	4	Yes
Fluorobenzene	1314961	1292528	1258578	1223612	1208671	1205229	1250596	4	Yes
Chlorobenzene-d5	947912	936749	891550	901414	869851	883990	905244	3	Yes
1,4-Dichlorobenzene-d4	439298	424432	405694	401199	394066	397249	410323	4	Yes

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

File ID:

Internal Standard Name	rc18i30.d	rc18i31.d	rc18i32.d	rc18i33.d	rc18i34.d	rc18i35.d	Avg. RT
t-Butyl Alcohol-d10	3.974	3.983	4.010	3.977	3.993	4.002	3.990
Fluorobenzene	7.433	7.433	7.434	7.436	7.433	7.435	7.434
Chlorobenzene-d5	10.969	10.969	10.970	10.969	10.969	10.971	10.970
1,4-Dichlorobenzene-d4	12.859	12.859	12.860	12.862	12.859	12.861	12.860

* indicates the retention time is greater than 30 seconds from the average RT.

Report generated on 10/18/2011 at 20:24.

INITIAL CALIBRATION VERIFICATION

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP07566 ICV Date: 10/18/11 Time: 20:45

Lab File ID: rc18v31.d Init. Calib. Date(s): 10/18/11 10/18/11

Matrix: (soil/water) SOIL Level: (low/med) MED GC Column: DB-624 ID: .25

COMPOUND	RRF	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT
Chlorotrifluoroethene	0.3077	0.2197	14.28	20	-29
Freon 133a	0.4972	0.4944	19.89	20	-1
Ethyl Ether	0.2039	0.2039	20.01	20	0
Acetonitrile	1.5043	1.4939	148.97	150	-1
Vinyl Acetate	0.4067	0.5531	135.99	100	36
Ethyl Acetate	0.2881	0.2962	20.56	20	3
Diethoxymethane	0.2655	0.2690	20.27	20	1
Isopropyl Acetate	0.5543	0.5599	20.20	20	1
n-Propyl Acetate	0.1092	0.1127	20.65	20	3
3,4-Dichloro-1-Butene	0.4057	0.4075	20.09	20	0
Butyl Acetate	0.6150	0.6370	20.72	20	4
cis-1,4-Dichloro-2-Butene	0.1450	0.1540	47.28	50	-5
2,3,4-Trichlorobutene	0.6977	0.6874	19.70	20	-1

Average %Drift 7

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

BHR12 0095

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP06720 Calibration Date(s): 12/13/11 12/13/11

Heated Purge: (Y/N) N Calibration Time(s): 10:46 12:28

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: DB-624 ID: .25

LAB FILE ID: RRF 4 = md13i05.d RRF 20= md13i04.d
RRF 50= md13i03.d RRF100= md13i02.d RRF300= md13i01.d

COMPOUND	RRF 4	RRF 20	RRF 50	RRF100	RRF300	$\overline{RRF}$	% RSD	CAL. METHOD
Dichlorodifluoromethane	2.9549	2.7561	2.6866	2.7974	2.8356	2.8061	4	AVG
Chloromethane	0.9280	0.7363	0.7474	0.7355	0.8164	0.7927	10	AVG
Vinyl Chloride	2.0629	1.8770	1.8500	1.8598	2.1435	1.9587	7	AVG
Bromomethane	1.7441	1.5223	1.4938	1.4107	1.3968	1.5136	9	AVG
Chloroethane	1.1885	0.9949	1.0081	0.9781	0.9707	1.0280	9	AVG
Trichlorofluoromethane	2.4299	2.3420	2.3406	2.3123	2.4185	2.3687	2	AVG
Freon 123a	1.6642	1.5608	1.6147	1.6551	1.7637	1.6517	5	AVG
Acrolein	0.3808	0.3485	0.3423	0.1796	0.3268	0.3156	25	AVG
1,1-Dichloroethene	1.7638	1.3473	1.3064	1.2762	1.2821	1.3952	15	AVG
Freon 113	1.3442	1.3059	1.3047	1.3591	1.3678	1.3363	2	AVG
Acetone	0.1537	0.1376	0.1367	0.0840	0.1361	0.1296	20	AVG
Methyl Iodide	2.7860	2.6020	2.6602	2.6265	2.7163	2.6782	3	AVG
2-Propanol	0.1315	0.1483	0.1240	0.1280	0.1202	0.1304	8	AVG
Carbon Disulfide	4.7997	4.3807	4.5541	4.6375	5.0417	4.6827	5	AVG
Methylene Chloride	1.6828	1.6323	1.5733	1.5655	1.6405	1.6189	3	AVG
t-Butyl Alcohol	0.1921	0.1742	0.1658	0.1725	0.1620	0.1733	7	AVG
Acrylonitrile	0.8366	0.6936	0.6674	0.3749	0.6601	0.6465	26	AVG
trans-1,2-Dichloroethene	1.8175	1.5177	1.4884	1.4597	1.4604	1.5487	10	AVG
Methyl Tertiary Butyl Ether	4.6445	4.3166	4.4415	4.4230	4.4710	4.4593	3	AVG
n-Hexane	1.6671	1.4955	1.5722	1.6670	1.7874	1.6378	7	AVG
1,1-Dichloroethane	3.1614	2.7539	2.8303	2.8105	2.9777	2.9068	6	AVG
di-Isopropyl Ether	5.9360	5.3262	5.4827	5.4435	5.5803	5.5537	4	AVG
2-Chloro-1,3-Butadiene	2.6377	2.3640	2.4088	2.4250	2.4215	2.4514	4	AVG
Ethyl t-Butyl Ether	4.9211	4.7868	4.9322	4.9812	5.1396	4.9522	3	AVG
cis-1,2-Dichloroethene	1.9605	1.6106	1.6339	1.6155	1.6260	1.6893	9	AVG
2,2-Dichloropropane	2.1860	1.9885	2.0298	1.9812	2.0190	2.0409	4	AVG
2-Butanone	1.1322	0.9789	0.9549	0.5083	0.9395	0.9028	26	AVG
Propionitrile	0.2639	0.2417	0.2479	0.2397	0.2373	0.2461	4	AVG
Methacrylonitrile	0.9949	1.0059	0.9828	0.9312	0.8915	0.9613	5	AVG
Tetrahydrofuran	0.4320	0.3868	0.3829	0.1916	0.3262	0.3439	27	AVG
Chloroform	4.2622	4.2435	4.2506	4.2137	4.0435	4.2027	2	AVG
1,1,1-Trichloroethane	3.1217	2.8529	2.9103	2.9287	2.8965	2.9420	4	AVG
Cyclohexane	3.8358	3.7435	3.7622	3.8587	3.6869	3.7774	2	AVG
Cyclohexane(2)	2.9827	2.9284	2.8931	2.9905	2.8854	2.9360	2	AVG
1,1-Dichloropropene	3.2783	3.3313	3.2586	3.2600	3.1299	3.2516	2	AVG
Carbon Tetrachloride	2.2138	2.3907	2.3921	2.4347	2.3695	2.3602	4	AVG
Isobutyl Alcohol	0.0145	0.0156	0.0142	0.0150	0.0143	0.0147	4	AVG
Benzene	1.4706	1.4449	1.3639	1.3516	1.3441	1.3950	4	AVG
1,2-Dichloroethane	0.5191	0.5107	0.4920	0.4910	0.4879	0.5001	3	AVG
1,2-Dichloroethane(2)	0.0572	0.0516	0.0478	0.0467	0.0463	0.0499	9	AVG
t-Amyl Methyl Ether	1.0699	1.0673	1.0333	1.0404	1.0405	1.0503	2	AVG
n-Heptane	0.3177	0.2401	0.2129	0.2228	0.2211	0.2429	18	AVG
Trichloroethene	0.4132	0.3861	0.3655	0.3653	0.3541	0.3769	6	AVG
1,2-Dichloropropane	0.4397	0.4258	0.4056	0.4135	0.4003	0.4170	4	AVG
Methyl Methacrylate	0.3151	0.3039	0.2959	0.3032	0.3028	0.3042	2	AVG
Dibromomethane	0.3127	0.3066	0.2913	0.2949	0.2895	0.2990	3	AVG
1,4-Dioxane	0.0028	0.0036	0.0032	0.0032	0.0041	0.0034	14	AVG
Bromodichloromethane	0.4856	0.4996	0.4851	0.4930	0.4991	0.4925	1	AVG
2-Chloroethyl Vinyl Ether	1.5739	1.6496	1.6157	1.6288	1.6762	1.6288	2	AVG
cis-1,3-Dichloropropene	3.2253	3.4172	3.4100	3.3340	3.4243	3.3622	3	AVG
4-Methyl-2-pentanone	2.6569	2.9395	2.8177	1.4896	2.7418	2.5291	23	AVG
Toluene	4.4562	4.6229	4.4693	4.3913	4.2942	4.4468	3	AVG

DHR12 8896

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

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Heated Purge: (Y/N) N Calibration Time(s): 10:46 12:28

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: DB-624 ID: .25

LAB FILE ID: RRF 4 = md13i05.d RRF 20= md13i04.d
RRF 50= md13i03.d RRF100= md13i02.d RRF300= md13i01.d

COMPOUND	RRF 4	RRF 20	RRF 50	RRF100	RRF300	$\overline{RRF}$	% RSD	CAL. METHOD
trans-1,3-Dichloropropene	2.7231	3.2515	3.1780	3.1090	3.1700	3.0863	7	AVG
Ethyl Methacrylate	2.6511	2.9305	2.8842	2.8668	2.9025	2.8470	4	AVG
1,1,2-Trichloroethane	1.9776	1.9553	1.8620	1.8302	1.8113	1.8873	4	AVG
Tetrachloroethene	1.7185	1.7615	1.7344	1.7198	1.7213	1.7311	1	AVG
1,3-Dichloropropane	3.1945	3.3575	3.2481	3.1698	3.2086	3.2357	2	AVG
2-Hexanone	1.7728	2.0793	2.0006	1.0734	2.0048	1.7862	23	AVG
Dibromochloromethane	1.7244	1.9528	2.0031	1.9778	2.0492	1.9414	7	AVG
1,2-Dibromoethane	2.0983	2.1918	2.1630	2.1345	2.1760	2.1527	2	AVG
Chlorobenzene	4.8234	5.0299	4.8831	4.7615	4.7822	4.8560	2	AVG
1,1,1,2-Tetrachloroethane	1.5334	1.6328	1.6166	1.5746	1.5733	1.5861	2	AVG
Ethylbenzene	8.4858	8.5580	8.4236	8.2207	7.9486	8.3274	3	AVG
m+p-Xylene	3.0960	3.0647	2.9818	2.8466	2.5043	2.8987	8	AVG
o-Xylene	3.0253	3.0518	2.9643	2.8083	2.4984	2.8696	8	AVG
Xylene (total)	3.0725	3.0604	2.9760	2.8338	2.5023	2.8890	8	AVG
Styrene	5.3646	5.4154	5.3184	5.1097	4.5412	5.1498	7	AVG
Bromoform	1.0430	1.3160	1.3683	1.3831	1.4420	1.3105	12	AVG
Isopropylbenzene	7.6395	7.5416	7.3307	7.0762	6.9055	7.2987	4	AVG
1,1,2,2-Tetrachloroethane	3.1287	3.0366	2.8899	2.7546	2.4774	2.8574	9	AVG
Bromobenzene	1.9434	2.0364	1.9829	1.9285	1.8007	1.9384	5	AVG
trans-1,4-Dichloro-2-Butene	0.7598	0.8060	0.8019	0.7909	0.7448	0.7807	3	AVG
1,2,3-Trichloropropane	0.6579	0.6808	0.6571	0.6378	0.6034	0.6474	4	AVG
n-Propylbenzene	9.7694	9.5407	9.4222	9.2765	8.5480	9.3114	5	AVG
2-Chlorotoluene	1.7183	1.7319	1.7104	1.6640	1.6161	1.6882	3	AVG
1,3,5-Trimethylbenzene	6.2981	6.2260	6.0271	5.7681	5.4257	5.9490	6	AVG
4-Chlorotoluene	1.8347	1.8237	1.7806	1.7238	1.6102	1.7546	5	AVG
tert-Butylbenzene	1.1135	1.0893	1.0494	1.0183	0.9792	1.0500	5	AVG
1,2,4-Trimethylbenzene	6.0931	6.3813	6.1847	6.0141	5.6395	6.0625	5	AVG
sec-Butylbenzene	7.8893	7.5495	7.3099	7.1322	6.8092	7.3380	6	AVG
p-Isopropyltoluene	6.1893	6.0221	5.7538	5.6086	5.1934	5.7535	7	AVG
1,3-Dichlorobenzene	3.3973	3.4969	3.4311	3.3172	3.0906	3.3466	5	AVG
1,4-Dichlorobenzene	3.5834	3.6710	3.6091	3.4987	3.3178	3.5360	4	AVG
Benzyl Chloride	4.7335	5.0529	5.0456	4.9390	4.8616	4.9265	3	AVG
n-Butylbenzene	3.6600	3.4975	3.3301	3.2436	3.0034	3.3469	7	AVG
1,2-Dichlorobenzene	3.3900	3.4323	3.3290	3.2125	3.0448	3.2817	5	AVG
1,2-Dibromo-3-Chloropropane	0.4826	0.4911	0.4687	0.4555	0.4627	0.4721	3	AVG
1,2,4-Trichlorobenzene	2.1841	2.2129	2.1835	2.1027	2.0746	2.1515	3	AVG
Hexachlorobutadiene	0.8105	0.7546	0.7247	0.7078	0.7002	0.7396	6	AVG
Naphthalene	6.5228	6.5714	6.4348	6.1658	6.1754	6.3741	3	AVG
1,2,3-Trichlorobenzene	2.1938	2.1567	2.1174	2.0004	1.9365	2.0810	5	AVG
1,2-Dichloroethane-d4	0.5457	0.5531	0.5727	0.5643		0.5589	2	AVG
1,2-Dichloroethane-d4(2)	0.3549	0.3644	0.3788	0.3787		0.3692	3	AVG
Fluorobenzene	1.2742	1.2823	1.2488	1.2574	1.2275	1.2580	2	AVG
4-Bromofluorobenzene	2.4138	2.4549	2.4635	2.4367	2.4942	2.4526	1	AVG
4-Bromofluorobenzene(2)	1.8074	1.8694	1.8520	1.8277	1.8479	1.8409	1	AVG
					Average %RSD		6	

DHR12 8897

Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem/HP06720.i/11dec13a.b/md13i01.d VSTD300
/chem/HP06720.i/11dec13a.b/md13i02.d VSTD100
/chem/HP06720.i/11dec13a.b/md13i03.d VSTD050
/chem/HP06720.i/11dec13a.b/md13i04.d VSTD020
/chem/HP06720.i/11dec13a.b/md13i05.d VSTD004

Area Summary

File ID:

Internal Standard Name	md13i01.d	md13i02.d	md13i03.d	md13i04.d	md13i05.d	Avg. Area	%RSD	In Spec
Bromochloromethane	102875	99519	96683	99646	103863	100517	3	Yes
1,4-Difluorobenzene	673878	675552	664135	648918	675897	667676	2	Yes
2-Bromo-1-chloropropane	121338	125923	120959	121709	129141	123814	3	Yes

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

File ID:

Internal Standard Name	md13i01.d	md13i02.d	md13i03.d	md13i04.d	md13i05.d	Avg. RT
Bromochloromethane	5.543	5.542	5.539	5.544	5.549	5.543
1,4-Difluorobenzene	7.102	7.101	7.098	7.109	7.107	7.103
2-Bromo-1-chloropropane	9.401	9.400	9.397	9.402	9.400	9.400

* Indicates the retention time is greater than 30 seconds from the average RT.

Report generated on 12/13/2011 at 13:51.

DHR12 2898

Lancaster Laboratories

GC/MS Volatiles Initial Calibration Verification

File: md13101.d Injected: 12/13/11 13:44 Method: EPA 624

Inst: HP06720 Sample: LCSM70 Matrix/level: W/L

COMPOUND NAME	CONC (UG/L)	TRUE CONC (UG/L)	LIMITS (UG/L)	MEETS REQUIREMENTS
Dichlorodifluoromethane	16.4	20.0	13.0-27.0	YES
Chloromethane	19.1	20.0	1.0-40.8	YES
Vinyl Chloride	20.3	20.0	.8-39.2	YES
Bromomethane	14.8	20.0	2.8-37.2	YES
Chloroethane	15.3	20.0	7.6-32.4	YES
Trichlorofluoromethane	18.6	20.0	9.6-30.4	YES
Freon 123a	20.1	20.0	13.0-27.0	YES
Acrolein	153.8	150.0	97.5-202.5	YES
1,1-Dichloroethene	18.3	20.0	10.1-29.9	YES
Freon 113	18.7	20.0	13.0-27.0	YES
Acetone	139.8	150.0	97.5-202.5	YES
Methyl Iodide	18.9	20.0	13.0-27.0	YES
2-Propanol	150.3	150.0	97.5-202.5	YES
Carbon Disulfide	18.7	20.0	13.0-27.0	YES
Methylene Chloride	21.5	20.0	12.1-27.9	YES
t-Butyl Alcohol	189.9	200.0	130.0-270.0	YES
Acrylonitrile	99.8	100.0	65.0-135.0	YES
trans-1,2-Dichloroethene	19.4	20.0	13.9-26.1	YES
Methyl Tertiary Butyl Ether	19.5	20.0	13.0-27.0	YES
n-Hexane	19.0	20.0	13.0-27.0	YES
1,1-Dichloroethane	19.7	20.0	14.5-25.5	YES
di-Isopropyl Ether	20.4	20.0	13.0-27.0	YES
2-Chloro-1,3-Butadiene	19.6	20.0	13.0-27.0	YES
Ethyl t-Butyl Ether	20.0	20.0	13.0-27.0	YES
cis-1,2-Dichloroethene	20.0	20.0	13.9-26.1	YES
2,2-Dichloropropane	20.2	20.0	13.0-27.0	YES
2-Butanone	143.5	150.0	97.5-202.5	YES
Propionitrile	161.4	150.0	97.5-202.5	YES
Methacrylonitrile	150.7	150.0	97.5-202.5	YES
Tetrahydrofuran	100.9	100.0	65.0-135.0	YES
Chloroform	19.3	20.0	13.5-26.5	YES
1,1,1-Trichloroethane	18.8	20.0	15.0-25.0	YES
Cyclohexane	18.5	20.0	13.0-27.0	YES
1,1-Dichloropropene	19.0	20.0	13.0-27.0	YES
Carbon Tetrachloride	18.4	20.0	14.6-25.4	YES
Isobutyl Alcohol	503.3	500.0	325.0-675.0	YES
Benzene	20.5	20.0	12.8-27.2	YES
1,2-Dichloroethane	20.4	20.0	13.6-26.4	YES
t-Amyl Methyl Ether	20.1	20.0	13.0-27.0	YES

NOTE: Results for surrogate spike compounds 1,2-Dichloroethane-d4, Fluorobenzene, 4-Bromofluorobenzene are expressed as rounded % recovery

DHR12 8899

Lancaster Laboratories

GC/MS Volatiles Initial Calibration Verification

File: md13101.d Injected: 12/13/11 13:44 Method: EPA 624

Inst: HP06720 Sample: LCSM70 Matrix/level: W/L

COMPOUND NAME	CONC (UG/L)	TRUE CONC (UG/L)	LIMITS (UG/L)	MEETS REQUIREMENTS
n-Heptane	18.5	20.0	13.0-27.0	YES
Trichloroethene	20.0	20.0	13.3-26.7	YES
1,2-Dichloropropane	20.4	20.0	6.8-33.2	YES
Methyl Methacrylate	20.1	20.0	13.0-27.0	YES
Dibromomethane	20.4	20.0	13.0-27.0	YES
1,4-Dioxane	647.0	500.0	325.0-675.0	YES
Bromodichloromethane	20.1	20.0	13.1-26.9	YES
2-Chloroethyl Vinyl Ether	20.5	20.0	.5-44.8	YES
cis-1,3-Dichloropropene	20.0	20.0	4.8-35.2	YES
4-Methyl-2-pentanone	110.7	100.0	65.0-135.0	YES
Toluene	20.3	20.0	14.9-25.1	YES
trans-1,3-Dichloropropene	19.3	20.0	10.0-30.0	YES
Ethyl Methacrylate	20.7	20.0	13.0-27.0	YES
1,1,2-Trichloroethane	20.0	20.0	14.2-25.8	YES
Tetrachloroethene	24.1	20.0	14.7-25.3	YES
1,3-Dichloropropane	20.3	20.0	13.0-27.0	YES
2-Hexanone	107.1	100.0	65.0-135.0	YES
Dibromochloromethane	18.9	20.0	13.5-26.5	YES
1,2-Dibromoethane	20.0	20.0	13.0-27.0	YES
Chlorobenzene	20.0	20.0	13.2-26.8	YES
1,1,1,2-Tetrachloroethane	19.8	20.0	13.0-27.0	YES
Ethylbenzene	20.2	20.0	11.8-28.2	YES
m+p-Xylene	41.7	40.0	26.0-54.0	YES
o-Xylene	20.9	20.0	13.0-27.0	YES
Xylene (total)	62.6	60.0	39.0-81.0	YES
Styrene	20.9	20.0	13.0-27.0	YES
Bromoform	18.3	20.0	14.2-25.8	YES
Isopropylbenzene	20.3	20.0	13.0-27.0	YES
1,1,2,2-Tetrachloroethane	21.0	20.0	12.1-27.9	YES
Bromobenzene	20.2	20.0	13.0-27.0	YES
trans-1,4-Dichloro-2-Butene	104.8	100.0	65.0-135.0	YES
1,2,3-Trichloropropane	20.5	20.0	13.0-27.0	YES
n-Propylbenzene	20.3	20.0	13.0-27.0	YES
2-Chlorotoluene	20.0	20.0	13.0-27.0	YES
1,3,5-Trimethylbenzene	20.2	20.0	13.0-27.0	YES
4-Chlorotoluene	20.0	20.0	13.0-27.0	YES
tert-Butylbenzene	19.7	20.0	13.0-27.0	YES
1,2,4-Trimethylbenzene	20.4	20.0	13.0-27.0	YES
sec-Butylbenzene	19.9	20.0	13.0-27.0	YES

NOTE: Results for surrogate spike compounds 1,2-Dichloroethane-d4, Fluorobenzene, 4-Bromofluorobenzene are expressed as rounded % recovery

DWR12 01088

Lancaster Laboratories
GC/MS Volatiles Initial Calibration Verification

File: md13101.d Injected: 12/13/11 13:44 Method: EPA 624
Inst: HP06720 Sample: LCSM70 Matrix/level: W/L

COMPOUND NAME	CONC (UG/L)	TRUE CONC (UG/L)	LIMITS (UG/L)	MEETS REQUIREMENTS
p-Isopropyltoluene	20.1	20.0	13.0-27.0	YES
1,3-Dichlorobenzene	20.3	20.0	14.6-25.4	YES
1,4-Dichlorobenzene	20.1	20.0	12.6-27.4	YES
Benzyl Chloride	19.8	20.0	13.0-27.0	YES
n-Butylbenzene	20.1	20.0	13.0-27.0	YES
1,2-Dichlorobenzene	20.2	20.0	12.6-27.4	YES
1,2-Dibromo-3-Chloropropane	19.5	20.0	13.0-27.0	YES
1,2,4-Trichlorobenzene	19.6	20.0	13.0-27.0	YES
Hexachlorobutadiene	18.6	20.0	13.0-27.0	YES
Naphthalene	19.8	20.0	13.0-27.0	YES
1,2,3-Trichlorobenzene	19.8	20.0	13.0-27.0	YES
1,2-Dichloroethane-d4	96	30	76-114	YES
Fluorobenzene	103	30	80-120	YES
4-Bromofluorobenzene	100	30	86-115	YES

NOTE: Results for surrogate spike compounds 1,2-Dichloroethane-d4, Fluorobenzene, 4-Bromofluorobenzene are expressed as rounded % recovery

DWR12 6181

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09685 Calibration Date: 12/29/11 Time: 10:19

Lab File ID: ad29c01.d Init. Calib. Date(s): 08/05/11 08/05/11

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: DB-624 ID: .25

	COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	Dichlorodifluoromethane	0.4110	0.4640	56.45	50	13	
#	Chloromethane	0.3874	0.4204	54.26	50	9	#
*	Vinyl Chloride	0.3949	0.3913	49.54	50	-1	*
	Bromomethane	0.2660	0.2859	53.74	50	7	
	Chloroethane	0.2070	0.2238	54.05	50	8	
	Trichlorofluoromethane	0.4712	0.5349	56.75	50	14	
	Ethanol	0.1185	0.1273	2684.46	2500	7	
	Freon 123a	0.3390	0.5179	76.39	50	53	
	Acrolein	1.8504	1.8726	506.00	500	1	
*	1,1-Dichloroethene	0.2531	0.2299	45.42	50	-9	*
	Dichlorofluoromethane	0.5504	0.5179	47.05	50	-6	
	Freon 113	0.2691	0.2403	44.64	50	-11	
	Acetone	0.0295	0.0387	131.42	100	31	
	Methyl Iodide	0.4834	0.4616	47.74	50	-5	
	2-Propanol	0.7225	1.0035	347.24	250	39	
	Carbon Disulfide	0.8526	0.7861	46.10	50	-8	
	Allyl Chloride	0.3672	0.4023	54.78	50	10	
	Methyl Acetate	0.1971	0.2457	62.34	50	25	
	Methylene Chloride	0.3125	0.2975	47.60	50	-5	
	t-Butyl Alcohol	1.3104	1.7735	338.35	250	35	
	Acrylonitrile	0.1040	0.1374	66.04	50	32	
	trans-1,2-Dichloroethene	0.2928	0.2802	47.85	50	-4	
	Methyl Tertiary Butyl Ether	0.8414	0.9805	58.27	50	17	
	n-Hexane	0.3825	0.3466	45.30	50	-9	
#	1,1-Dichloroethane	0.5059	0.5483	54.19	50	8	#
	2-Chloro-1,3-Butadiene	0.4086	0.4772	58.39	50	17	
	di-Isopropyl Ether	0.8368	0.9996	59.73	50	19	
	Ethyl t-Butyl Ether	0.8574	0.9402	54.83	50	10	
	cis-1,2-Dichloroethene	0.3264	0.3261	49.97	50	0	
	1,2-Dichloroethene (total)	0.3096	0.3032	97.82	100	-2	
	2,2-Dichloropropane	0.4370	0.4626	52.92	50	6	
	2-Butanone	0.1426	0.1894	132.86	100	33	
	Propionitrile	1.4327	1.7590	306.94	250	23	
	Methacrylonitrile	0.1362	0.1684	154.48	125	24	
	Bromochloromethane	0.1615	0.1571	48.64	50	-3	
	Tetrahydrofuran	1.3454	1.4293	106.23	100	6	

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

DHR12 8842

FORM VII VOA

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09685 Calibration Date: 12/29/11 Time: 10:19

Lab File ID: ad29c01.d Init. Calib. Date(s): 08/05/11 08/05/11

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: DB-624 ID: .25

	COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT	
*	Chloroform	0.5165	0.5858	56.71	50	13	*
	1,1,1-Trichloroethane	0.5026	0.4941	49.15	50	-2	
	Cyclohexane	0.4644	0.4395	47.31	50	-5	
	Cyclohexane(mz84)	0.4290	0.3837	44.72	50	-11	
	Cyclohexane(mz69)	0.1509	0.1356	44.93	50	-10	
	1,1-Dichloropropene	0.4021	0.4163	51.77	50	4	
	Carbon Tetrachloride	0.3945	0.4293	54.41	50	9	
	Benzene	1.1791	1.2008	50.92	50	2	
	Isobutyl Alcohol	0.3996	0.5922	926.24	625	48	
	1,2-Dichloroethane	0.4148	0.5519	66.51	50	33	
	1,2-Dichloroethane(mz98)	0.0373	0.0403	54.03	50	8	
	t-Amyl Methyl Ether	0.7922	0.8752	55.24	50	10	
	n-Heptane	0.3874	0.3981	51.38	50	3	
	n-Butanol	0.3685	0.4483	1520.66	1250	22	
	Trichloroethene	0.3184	0.3249	51.02	50	2	
	Methylcyclohexane	0.5114	0.4505	44.05	50	-12	
*	1,2-Dichloropropane	0.3121	0.3307	52.98	50	6	*
	Dibromomethane	0.2018	0.2288	56.69	50	13	
	1,4-Dioxane	0.1425	0.1682	737.55	625	18	
	Methyl Methacrylate	0.2318	0.2943	63.47	50	27	
	Bromodichloromethane	0.3832	0.4583	59.79	50	20	
	2-Nitropropane	2.4963	3.5576	115.08	100	15	
	cis-1,3-Dichloropropene	0.4751	0.5393	56.75	50	14	
	4-Methyl-2-Pentanone	0.3146	0.4137	131.50	100	32	
*	Toluene	0.9748	1.0759	55.19	50	10	*
	trans-1,3-Dichloropropene	0.5822	0.7369	63.29	50	27	
	Ethyl Methacrylate	0.5060	0.7058	69.74	50	39	
	1,1,2-Trichloroethane	0.3524	0.4178	59.28	50	19	
	Tetrachloroethene	0.4370	0.4941	56.53	50	13	
	1,3-Dichloropropane	0.6061	0.7422	61.22	50	22	
	2-Hexanone	0.3022	0.4220	123.25	100	23	
	Dibromochloromethane	0.3846	0.4985	64.81	50	30	
	1,2-Dibromoethane	0.3638	0.4558	62.64	50	25	
#	Chlorobenzene	1.1280	1.2770	56.61	50	13	#
	1,1,1,2-Tetrachloroethane	0.3829	0.4745	61.95	50	24	
*	Ethylbenzene	1.8321	2.1535	58.77	50	18	*

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane) DHR12 #183

Maximum %Drift for CCC(*)=20%

FORM VII VOA

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09685 Calibration Date: 12/29/11 Time: 10:19

Lab File ID: ad29c01.d Init. Calib. Date(s): 08/05/11 08/05/11

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: DB-624 ID: .25

	COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	m+p-Xylene	0.7232	0.8331	115.20	100	15	
	Xylene (Total)	0.7229	0.8312	172.47	150	15	
	o-Xylene	0.7223	0.8273	57.27	50	15	
	Styrene	1.1422	1.4184	62.09	50	24	
#	Bromoform	0.2758	0.3752	68.02	50	36	#
	Isopropylbenzene	1.7926	2.1668	60.44	50	21	
	Cyclohexanone	0.4246	0.4110	604.95	625	-3	
	Bromobenzene	0.8523	1.0229	60.01	50	20	
#	1,1,2,2-Tetrachloroethane	0.8928	1.0855	60.79	50	22	#
	1,2,3-Trichloropropane	0.2792	0.3498	62.66	50	25	
	trans-1,4-Dichloro-2-Butene	0.2714	0.4171	192.10	125	54	
	n-Propylbenzene	3.6752	4.3766	59.54	50	19	
	2-Chlorotoluene	0.8028	0.9119	56.80	50	14	
	1,3,5-Trimethylbenzene	2.6491	3.2204	60.78	50	22	
	4-Chlorotoluene	0.8303	0.9670	58.23	50	16	
	tert-Butylbenzene	0.6300	0.7292	57.88	50	16	
	Pentachloroethane	0.5238	0.5766	55.04	50	10	
	1,2,4-Trimethylbenzene	2.8366	3.3368	58.82	50	18	
	sec-Butylbenzene	3.3751	3.9960	59.20	50	18	
	1,3-Dichlorobenzene	1.6330	1.9036	58.28	50	17	
	p-Isopropyltoluene	3.0305	3.6243	59.80	50	20	
	1,4-Dichlorobenzene	1.6819	1.9344	57.51	50	15	
	1,2,3-Trimethylbenzene	2.8081	3.0251	53.86	50	8	
	Benzyl Chloride	0.4114	0.5064	61.55	50	23	
	1,2-Dichlorobenzene	1.6067	1.8651	58.04	50	16	
	n-Butylbenzene	1.5719	1.7732	56.40	50	13	
	1,3-Diethylbenzene	1.7519	1.8793	53.64	50	7	
	1,4-Diethylbenzene	1.8399	1.9720	53.59	50	7	
	1,2-Diethylbenzene	1.5340	1.6168	52.70	50	5	
	1,2-Dibromo-3-Chloropropane	0.1877	0.3010	80.20	50	60	
	1,3,5-Trichlorobenzene	1.3335	1.6115	60.42	50	21	
	1,2,4-Trichlorobenzene	1.2983	1.4896	57.37	50	15	
	Hexachlorobutadiene	0.6827	0.7952	58.23	50	16	
	Naphthalene	3.3209	4.0742	61.34	50	23	
	1,2,3-Trichlorobenzene	1.2343	1.4795	59.93	50	20	
	2-Methylnaphthalene	2.1595	2.2893	53.00	50	6	

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

DNR12 81184

FORM VII VOA

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09685 Calibration Date: 12/29/11 Time: 10:19

Lab File ID: ad29c01.d Init. Calib. Date(s): 08/05/11 08/05/11

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: DB-624 ID: .25

COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT
Dibromofluoromethane	0.2428	0.2484	51.14	50	2
Dibromofluoromethane(mz111)	0.2484	0.2537	51.06	50	2
1,2-Dichloroethane-d4	0.0575	0.0557	48.47	50	-3
1,2-Dichloroethane-d4(mz65)	0.2834	0.3447	60.81	50	22
1,2-Dichloroethane-d4(mz104)	0.0364	0.0360	49.49	50	-1
Toluene-d8	1.2693	1.3436	52.93	50	6
Toluene-d8(mz100)	0.8253	0.8695	52.68	50	5
4-Bromofluorobenzene	0.5117	0.5034	49.18	50	-2
4-Bromofluorobenzene(mz174)	0.4310	0.4539	52.66	50	5

Average %Drift 16

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

DHR12 61185

FORM VII VOA

Lancaster Laboratories
Continuing Calibration Internal Standard Check

Initial Calibration Standards:

/chem2/HP09685.i/11aug05a.b/ag05i06.d
/chem2/HP09685.i/11aug05a.b/ag05i05.d
/chem2/HP09685.i/11aug05a.b/ag05i04.d
/chem2/HP09685.i/11aug05a.b/ag05i03.d
/chem2/HP09685.i/11aug05a.b/ag05i02.d
/chem2/HP09685.i/11aug05a.b/ag05i01.d

File /chem2/HP09685.i/11aug05a.b/ag05i03.d is Mid Level Calibration Standard used for comparison.

Current Continuing Calibration Standard:

/chem2/HP09685.i/11dec29a.b/ad29c01.d

RT Summary

Internal Standard Name	File ID: ad29c01.d	ICAL RT	In Spec
t-Butyl Alcohol-d10	3.958	3.958	Yes
Fluorobenzene	7.419	7.413	Yes
Chlorobenzene-d5	10.960	10.954	Yes
1,4-Dichlorobenzene-d4	12.858	12.852	Yes

A "No" indicates the retention time is greater than 30 seconds from the referenced ICAL standard.

Area Summary

Internal Standard Name	File ID: ad29c01.d	ICAL Area	Low Limit	High Limit	In Spec
t-Butyl Alcohol-d10	202941	256942	128471	513884	Yes
Fluorobenzene	1184677	1477258	738629	2954516	Yes
Chlorobenzene-d5	875239	1179094	589547	2358188	Yes
1,4-Dichlorobenzene-d4	513309	695398	347699	1390796	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

BNB12 B186

Comments: _____

report generated on 12/29/2011 at 11:19

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09685 Calibration Date: 12/29/11 Time: 10:43

Lab File ID: ad29c02.d Init. Calib. Date(s): 08/29/11 08/29/11

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: DB-624 ID: .25

COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT
Ethyl Ether	0.2765	0.2051	37.08	50	-26
Acetonitrile	1.4018	1.2327	219.84	250	-12
Vinyl Acetate	0.3701	0.4287	52.80	50	6
Ethyl Acetate	0.2936	0.3217	54.79	50	10

Average %Drift 14

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

DHR12 0188

FORM VII VOA

Lancaster Laboratories
Continuing Calibration Internal Standard Check

Initial Calibration Standards:

/chem2/HP09685.i/11aug29a.b/ag29i06.d
/chem2/HP09685.i/11aug29a.b/ag29i05.d
/chem2/HP09685.i/11aug29a.b/ag29i04.d
/chem2/HP09685.i/11aug29a.b/ag29i03.d
/chem2/HP09685.i/11aug29a.b/ag29i02.d
/chem2/HP09685.i/11aug29a.b/ag29i01.d

File /chem2/HP09685.i/11aug29a.b/ag29i03.d is Mid Level Calibration Standard used for comparison.

Current Continuing Calibration Standard:

/chem2/HP09685.i/11dec29a.b/ad29c02.d

RT Summary

Internal Standard Name	File ID: ad29c02.d	ICAL RT	In Spec
t-Butyl Alcohol-d10	3.958	3.952	Yes
Fluorobenzene	7.419	7.413	Yes
Chlorobenzene-d5	10.960	10.954	Yes
1,4-Dichlorobenzene-d4	12.858	12.852	Yes

A "No" indicates the retention time is greater than 30 seconds from the referenced ICAL standard.

Area Summary

Internal Standard Name	File ID: ad29c02.d	ICAL Area	Low Limit	High Limit	In Spec
t-Butyl Alcohol-d10	198225	162392	81196	324784	Yes
Fluorobenzene	1187571	1052083	526042	2104166	Yes
Chlorobenzene-d5	865721	803706	401853	1607412	Yes
1,4-Dichlorobenzene-d4	489242	448711	224356	897422	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

DHB12 8189

Comments: _____

report generated on 12/29/2011 at 11:29

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP07565 Calibration Date: 12/29/11 Time: 20:54

Lab File ID: rd29c10.d Init. Calib. Date(s): 10/18/11 10/18/11

Matrix: (soil/water) SOIL Level: (low/med) MED GC Column: DB-624 ID: .25

	COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	Dichlorodifluoromethane	0.3625	0.3543	48.87	50	-2	
#	Chloromethane	0.3546	0.3622	51.07	50	2	#
*	Vinyl Chloride	0.3438	0.3550	51.63	50	3	*
	Bromomethane	5.4155	4.8650	44.92	50	-10	
	Chloroethane	3.4387	3.2783	47.67	50	-5	
	Dichlorofluoromethane	0.3367	0.2577	38.27	50	-23	
	Trichlorofluoromethane	0.3895	0.3225	41.39	50	-17	
	Ethanol	0.1018	0.1130	2775.31	2500	11	
	Freon 123a	0.2483	0.2362	47.56	50	-5	
	Acrolein	2.0937	2.3182	553.60	500	11	
*	1,1-Dichloroethene	0.2045	0.2290	56.01	50	12	*
	Freon 113	0.1782	0.2027	56.87	50	14	
	Acetone	0.0258	0.0270	104.66	100	5	
	Methyl Iodide	0.3526	0.3994	56.65	50	13	
	2-Propanol	0.8351	1.0173	304.54	250	22	
	Carbon Disulfide	0.6642	0.7467	56.20	50	12	
	Allyl Chloride	0.3823	0.4516	59.06	50	18	
	Methyl Acetate	0.2072	0.2437	58.81	50	18	
	Methylene Chloride	0.2482	0.2784	56.08	50	12	
	t-Butyl Alcohol	1.2219	1.1575	236.81	250	-5	
	Acrylonitrile	0.1143	0.1189	52.03	50	4	
	trans-1,2-Dichloroethene	0.2389	0.2603	54.48	50	9	
	Methyl Tertiary Butyl Ether	0.7496	0.8054	53.72	50	7	
	n-Hexane	0.2080	0.2374	57.07	50	14	
#	1,1-Dichloroethane	0.4595	0.5060	55.06	50	10	#
	di-Isopropyl Ether	0.8752	0.9889	56.50	50	13	
	2-Chloro-1,3-Butadiene	0.3992	0.3996	50.04	50	0	
	Ethyl t-Butyl Ether	0.8425	0.8974	53.26	50	7	
	cis-1,2-Dichloroethene	0.2645	0.2844	53.75	50	8	
	1,2-Dichloroethene (total)	0.2517	0.2723	108.24	100	8	
	2,2-Dichloropropane	0.3715	0.3724	50.12	50	0	
	2-Butanone	0.1460	0.1396	95.62	100	-4	
	2-Butanone(mz72)	0.0361	0.0347	95.94	100	-4	
	Propionitrile	0.0434	0.0470	270.84	250	8	
	Methacrylonitrile	0.1218	0.1329	136.37	125	9	
	Bromochloromethane	0.1222	0.1406	57.56	50	15	

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

DHR12.6111

FORM VII VOA

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP07566 Calibration Date: 12/29/11 Time: 20:54

Lab File ID: rd29c10.d Init. Calib. Date(s): 10/18/11 10/18/11

Matrix: (soil/water) SOIL Level: (low/med) MED GC Column: DB-624 ID: .25

	COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	Tetrahydrofuran	1.3211	1.3150	99.54	100	0	
*	Chloroform	0.4314	0.4388	50.86	50	2	*
	1,1,1-Trichloroethane	0.3899	0.3604	46.21	50	-8	
	Cyclohexane	0.3386	0.3419	50.49	50	1	
	Cyclohexane(mz84)	0.2760	0.2747	49.77	50	0	
	Cyclohexane(mz69)	0.1028	0.1001	48.68	50	-3	
	1,1-Dichloropropene	0.3368	0.3465	51.45	50	3	
	Carbon Tetrachloride	0.2854	0.2785	48.79	50	-2	
	Isobutyl Alcohol	0.4343	0.4047	582.42	625	-7	
	Benzene	1.0185	1.1055	54.27	50	9	
	1,2-Dichloroethane(mz98)	0.0314	0.0347	55.21	50	10	
	1,2-Dichloroethane	0.3664	0.3575	48.78	50	-2	
	t-Amyl Methyl Ether	0.7702	0.8139	52.84	50	6	
	n-Heptane	0.2222	0.2511	56.50	50	13	
	n-Butanol	0.3711	0.3160	1064.39	1250	-15	
	Trichloroethene	0.2536	0.2589	51.05	50	2	
	Methylcyclohexane	0.2574	0.2667	51.79	50	4	
*	1,2-Dichloropropane	0.2799	0.3086	55.13	50	10	*
	Dibromomethane	0.1646	0.1749	53.11	50	6	
	Methyl Methacrylate	0.2198	0.2213	50.35	50	1	
	1,4-Dioxane	0.1383	0.1188	537.04	625	-14	
	Bromodichloromethane	0.3273	0.3321	50.74	50	1	
	2-Nitropropane	1.0116	0.9467	93.58	100	-6	
	2-Chloroethyl Vinyl Ether	0.1893	0.1921	50.74	50	1	
	cis-1,3-Dichloropropene	0.4346	0.4645	53.43	50	7	
	4-Methyl-2-Pentanone	0.3366	0.3067	91.09	100	-9	
*	Toluene	0.8731	0.8800	50.40	50	1	*
	trans-1,3-Dichloropropene	0.5663	0.5806	51.26	50	3	
	Ethyl Methacrylate	0.5322	0.5586	52.48	50	5	
	1,1,2-Trichloroethane	0.3286	0.3363	51.17	50	2	
	Tetrachloroethene	0.3112	0.2999	48.19	50	-4	
	1,3-Dichloropropane	0.5940	0.6045	50.89	50	2	
	2-Hexanone	0.3612	0.2833	78.42	100	-22	
	Dibromochloromethane	0.3438	0.3504	50.95	50	2	
	1,2-Dibromoethane	0.3455	0.3514	50.85	50	2	
#	Chlorobenzene	0.9617	0.9615	49.99	50	0	#

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane) DHR12 0112

Maximum %Drift for CCC(*)=20%

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP07566 Calibration Date: 12/29/11 Time: 20:54

Lab File ID: rd29c10.d Init. Calib. Date(s): 10/18/11 10/18/11

Matrix: (soil/water) SOIL Level: (low/med) MED GC Column: DB-624 ID: .25

			ACTUAL	TRUE	%	
COMPOUND	RRF	RRF50	CONC.	CONC.	DRIFT	
1,1,1,2-Tetrachloroethane	0.3287	0.3229	49.12	50	-2	
Ethylbenzene	1.5613	1.4610	46.79	50	-6	*
m+p-Xylene	0.5941	0.5694	95.84	100	-4	
Xylene (Total)	0.5935	0.5682	143.61	150	-4	
o-Xylene	0.5924	0.5659	47.76	50	-4	
Styrene	1.0509	0.9924	47.22	50	-6	
Bromoform	0.2339	0.2328	45.15	50	-10	#
Isopropylbenzene	1.3449	1.2077	44.90	50	-10	
Cyclohexanone	0.3819	0.3477	569.01	625	-9	
1,1,2,2-Tetrachloroethane	1.0296	1.0744	52.18	50	4	#
Bromobenzene	0.8504	0.8829	51.91	50	4	
1,2,3-Trichloropropane	0.2949	0.2930	49.67	50	-1	
trans-1,4-Dichloro-2-Butene	0.3399	0.3318	122.04	125	-2	
n-Propylbenzene	3.2411	3.2752	50.53	50	1	
2-Chlorotoluene	0.7098	0.7318	51.55	50	3	
1,3,5-Trimethylbenzene	2.3595	2.3323	49.42	50	-1	
4-Chlorotoluene	0.7688	0.7932	51.59	50	3	
tert-Butylbenzene	0.5038	0.5270	52.30	50	5	
Pentachloroethane	0.4702	0.5785	61.51	50	23	
1,2,4-Trimethylbenzene	2.5072	2.4696	49.25	50	-1	
sec-Butylbenzene	2.5990	2.7060	52.06	50	4	
1,3-Dichlorobenzene	1.3688	1.3967	51.02	50	2	
p-Isopropyltoluene	2.2747	2.3504	51.66	50	3	
1,4-Dichlorobenzene	1.4988	1.4958	49.90	50	0	
1,2,3-Trimethylbenzene	2.5436	2.8050	55.14	50	10	
Benzyl Chloride	1.9945	2.1668	54.32	50	9	
n-Butylbenzene	1.1303	1.1657	51.56	50	3	
1,2-Dichlorobenzene	1.3928	1.4030	50.36	50	1	
1,3-Diethylbenzene	1.3332	1.4954	56.09	50	12	
1,4-Diethylbenzene	1.2660	1.4025	55.39	50	11	
1,2-Diethylbenzene	1.3445	1.4987	55.74	50	11	
1,2-Dibromo-3-Chloropropane	0.2032	0.1642	40.40	50	-19	
1,3,5-Trichlorobenzene	0.9092	0.8827	48.55	50	-3	
1,2,4-Trichlorobenzene	0.8682	0.7519	43.30	50	-13	
Hexachlorobutadiene	0.4507	0.3821	42.39	50	-15	
Naphthalene	2.8378	2.6159	46.09	50	-8	

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)

Maximum %Drift for CCC(*)=20%

FORM VII VOA

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP07566 Calibration Date: 12/29/11 Time: 20:54

Lab File ID: rd29c10.d Init. Calib. Date(s): 10/18/11 10/18/11

Matrix: (soil/water) SOIL Level: (low/med) MED GC Column: DB-624 ID: .25

COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT
1,2,3-Trichlorobenzene	0.8510	0.5970	35.07	50	-30
2-Methylnaphthalene	1.4299	1.6325	57.08	50	14
Dibromofluoromethane	0.2301	0.2102	45.66	50	-9
Dibromofluoromethane(mz111)	0.2368	0.2179	46.00	50	-8
1,2-Dichloroethane-d4	0.0593	0.0565	47.56	50	-5
1,2-Dichloroethane-d4(mz104)	0.0374	0.0364	48.69	50	-3
1,2-Dichloroethane-d4(mz65)	0.3027	0.2570	42.44	50	-15
Toluene-d8	1.3091	1.1485	43.86	50	-12
Toluene-d8(mz100)	0.8501	0.7530	44.29	50	-11
4-Bromofluorobenzene	0.5125	0.3879	37.85	50	-24
4-Bromofluorobenzene(mz174)	0.3970	0.3069	38.65	50	-23

Average %Drift 8

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)

Maximum %Drift for CCC(*)=20%

DHK12 8114

FORM VII VOA

Lancaster Laboratories
Continuing Calibration Internal Standard Check

Initial Calibration Standards:

/chem/HP07566.i/11oct18i.b/rc18i16.d
/chem/HP07566.i/11oct18i.b/rc18i15.d
/chem/HP07566.i/11oct18i.b/rc18i14.d
/chem/HP07566.i/11oct18i.b/rc18i13.d
/chem/HP07566.i/11oct18i.b/rc18i12.d
/chem/HP07566.i/11oct18i.b/rc18i11.d

File /chem/HP07566.i/11oct18i.b/rc18i13.d is Mid Level Calibration Standard used for comparison.

Current Continuing Calibration Standard:

/chem/HP07566.i/11dec29b.b/rd29c10.d

RT Summary

Internal Standard Name	File ID: rd29c10.d	ICAL RT	In Spec
t-Butyl Alcohol-d10	3.991	3.990	Yes
Fluorobenzene	7.428	7.433	Yes
Chlorobenzene-d5	10.967	10.969	Yes
1,4-Dichlorobenzene-d4	12.860	12.859	Yes

A "No" indicates the retention time is greater than 30 seconds from the referenced ICAL standard.

Area Summary

Internal Standard Name	File ID: rd29c10.d	ICAL Area	Low Limit	High Limit	In Spec
t-Butyl Alcohol-d10	165470	202340	101170	404680	Yes
Fluorobenzene	1272268	1485355	742678	2970710	Yes
Chlorobenzene-d5	937624	1077628	538814	2155256	Yes
1,4-Dichlorobenzene-d4	393379	497627	248814	995254	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

DHR12 0115

Comments: _____

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP07566 Calibration Date: 12/29/11 Time: 21:17

Lab File ID: rd29c11.d Init. Calib. Date(s): 10/18/11 10/18/11

Matrix: (soil/water) SOIL Level: (low/med) MED GC Column: DB-624 ID: .25

COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT
Chlorotrifluoroethene	0.3077	0.3037	49.34	50	-1
Freon 133a	0.4972	0.4447	44.72	50	-11
Ethyl Ether	0.2039	0.1478	36.26	50	-27
Acetonitrile	1.5043	1.8020	299.47	250	20
Vinyl Acetate	0.4067	0.3431	42.18	50	-16
Ethyl Acetate	0.2881	0.2557	44.37	50	-11
Diethoxymethane	0.2655	0.2476	46.64	50	-7
Isopropyl Acetate	0.5543	0.4943	44.59	50	-11
n-Propyl Acetate	0.1092	0.0992	45.45	50	-9
3,4-Dichloro-1-Butene	0.4057	0.3625	44.68	50	-11
Butyl Acetate	0.6150	0.5509	44.79	50	-10
cis-1,4-Dichloro-2-Butene	0.1450	0.1313	40.77	50	-18
2,3,4-Trichlorobutene	0.6977	0.6647	47.63	50	-5

Average %Drift 12

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

DHR12 #116

FORM VII VOA

Lancaster Laboratories
Continuing Calibration Internal Standard Check

Initial Calibration Standards:

/chem/HP07566.i/11oct18h.b/rc18i35.d
/chem/HP07566.i/11oct18h.b/rc18i34.d
/chem/HP07566.i/11oct18h.b/rc18i33.d
/chem/HP07566.i/11oct18h.b/rc18i32.d
/chem/HP07566.i/11oct18h.b/rc18i31.d
/chem/HP07566.i/11oct18h.b/rc18i30.d

File /chem/HP07566.i/11oct18h.b/rc18i32.d is Mid Level Calibration Standard used for comparison.

Current Continuing Calibration Standard:

/chem/HP07566.i/11dec29b.b/rd29c11.d

RT Summary

Internal Standard Name	File ID: rd29c11.d	ICAL RT	In Spec
t-Butyl Alcohol-d10	3.964	4.010	Yes
Fluorobenzene	7.433	7.434	Yes
Chlorobenzene-d5	10.969	10.970	Yes
1,4-Dichlorobenzene-d4	12.862	12.860	Yes

A "No" indicates the retention time is greater than 30 seconds from the referenced ICAL standard.

Area Summary

Internal Standard Name	File ID: rd29c11.d	ICAL Area	Low Limit	High Limit	In Spec
t-Butyl Alcohol-d10	147670	160490	80245	320980	Yes
Fluorobenzene	1237703	1258578	629289	2517156	Yes
Chlorobenzene-d5	923434	891550	445775	1783100	Yes
1,4-Dichlorobenzene-d4	382064	405694	202847	811388	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

DHRiZ 0117

Comments: _____

GC/MS Volatiles Method 624 Check Sample Summary

File: md21c01.d Injected: 12/21/11 11:29 Method: EPA 624
Inst: HP06720 Sample: VSTD020 Matrix/level: W/L

COMPOUND NAME	CONC (UG/L)	TRUE CONC (UG/L)	LIMITS (UG/L)	MEETS REQUIREMENTS
Dichlorodifluoromethane	18.7	20.0	13.0-27.0	YES
Chloromethane	21.7	20.0	1.0-40.8	YES
Vinyl Chloride	19.4	20.0	.8-39.2	YES
Bromomethane	21.2	20.0	2.8-37.2	YES
Chloroethane	20.1	20.0	7.6-32.4	YES
Trichlorofluoromethane	18.4	20.0	9.6-30.4	YES
Freon 123a	20.4	20.0	13.0-27.0	YES
Acrolein	224.0	200.0	130.0-270.0	YES
1,1-Dichloroethene	18.2	20.0	10.1-29.9	YES
Freon 113	18.9	20.0	13.0-27.0	YES
Acetone	45.7	40.0	26.0-54.0	YES
Methyl Iodide	18.7	20.0	13.0-27.0	YES
2-Propanol	91.7	100.0	65.0-135.0	YES
Carbon Disulfide	19.3	20.0	13.0-27.0	YES
Methylene Chloride	19.1	20.0	12.1-27.9	YES
t-Butyl Alcohol	75.3	100.0	65.0-135.0	YES
Acrylonitrile	19.9	20.0	13.0-27.0	YES
trans-1,2-Dichloroethene	18.4	20.0	13.9-26.1	YES
Methyl Tertiary Butyl Ether	17.4	20.0	13.0-27.0	YES
n-Hexane	18.3	20.0	13.0-27.0	YES
1,1-Dichloroethane	18.3	20.0	14.5-25.5	YES
di-Isopropyl Ether	18.3	20.0	13.0-27.0	YES
2-Chloro-1,3-Butadiene	17.9	20.0	13.0-27.0	YES
Ethyl t-Butyl Ether	16.8	20.0	13.0-27.0	YES
cis-1,2-Dichloroethene	18.2	20.0	13.9-26.1	YES
2,2-Dichloropropane	19.5	20.0	13.0-27.0	YES
2-Butanone	41.3	40.0	26.0-54.0	YES
Propionitrile	97.5	100.0	65.0-135.0	YES
Methacrylonitrile	53.4	50.0	32.5-67.5	YES
Tetrahydrofuran	36.4	40.0	26.0-54.0	YES
Chloroform	18.2	20.0	13.5-26.5	YES
1,1,1-Trichloroethane	16.4	20.0	15.0-25.0	YES
Cyclohexane	16.1	20.0	13.0-27.0	YES
Cyclohexane(2)	16.6	20.0	13.0-27.0	YES
1,1-Dichloropropene	17.1	20.0	13.0-27.0	YES
Carbon Tetrachloride	16.2	20.0	14.6-25.4	YES
Isobutyl Alcohol	243.9	250.0	162.5-337.5	YES
Benzene	22.1	20.0	12.8-27.2	YES
1,2-Dichloroethane	22.0	20.0	13.6-26.4	YES

NOTE: Results for surrogate spike compounds 1,2-Dichloroethane-d4, Fluorobenzene, 4-Bromofluorobenzene are expressed as rounded % recovery

DHR12 0118

GC/MS Volatiles Method 624 Check Sample Summary

File: md21c01.d Injected: 12/21/11 11:29 Method: EPA 624
Inst: HP06720 Sample: VSTD020 Matrix/level: W/L

COMPOUND NAME	CONC (UG/L)	TRUE CONC (UG/L)	LIMITS (UG/L)	MEETS REQUIREMENTS
1,2-Dichloroethane(2)	20.9	20.0	13.6-26.4	YES
t-Amyl Methyl Ether	20.7	20.0	13.0-27.0	YES
n-Heptane	19.9	20.0	13.0-27.0	YES
Trichloroethene	21.2	20.0	13.3-26.7	YES
1,2-Dichloropropane	21.8	20.0	6.8-33.2	YES
Methyl Methacrylate	21.1	20.0	13.0-27.0	YES
Dibromomethane	22.0	20.0	13.0-27.0	YES
1,4-Dioxane	243.8	250.0	162.5-337.5	YES
Bromodichloromethane	22.6	20.0	13.1-26.9	YES
2-Chloroethyl Vinyl Ether	18.0	20.0	.5-44.8	YES
cis-1,3-Dichloropropene	19.6	20.0	4.8-35.2	YES
4-Methyl-2-pentanone	42.5	40.0	26.0-54.0	YES
Toluene	19.9	20.0	14.9-25.1	YES
trans-1,3-Dichloropropene	20.1	20.0	10.0-30.0	YES
Ethyl Methacrylate	19.4	20.0	13.0-27.0	YES
1,1,2-Trichloroethane	20.2	20.0	14.2-25.8	YES
Tetrachloroethene	19.4	20.0	14.7-25.3	YES
1,3-Dichloropropane	20.8	20.0	13.0-27.0	YES
2-Hexanone	41.7	40.0	26.0-54.0	YES
Dibromochloromethane	20.0	20.0	13.5-26.5	YES
1,2-Dibromoethane	19.7	20.0	13.0-27.0	YES
Chlorobenzene	19.1	20.0	13.2-26.8	YES
1,1,1,2-Tetrachloroethane	19.1	20.0	13.0-27.0	YES
Ethylbenzene	19.8	20.0	11.8-28.2	YES
m+p-Xylene	40.1	40.0	26.0-54.0	YES
o-Xylene	20.2	20.0	13.0-27.0	YES
Xylene (total)	60.4	60.0	39.0-81.0	YES
Styrene	20.0	20.0	13.0-27.0	YES
Bromoform	20.9	20.0	14.2-25.8	YES
Isopropylbenzene	19.5	20.0	13.0-27.0	YES
1,1,2,2-Tetrachloroethane	20.6	20.0	12.1-27.9	YES
Bromobenzene	19.5	20.0	13.0-27.0	YES
trans-1,4-Dichloro-2-Butene	47.4	50.0	32.5-67.5	YES
1,2,3-Trichloropropane	18.5	20.0	13.0-27.0	YES
n-Propylbenzene	20.3	20.0	13.0-27.0	YES
2-Chlorotoluene	19.1	20.0	13.0-27.0	YES
1,3,5-Trimethylbenzene	19.4	20.0	13.0-27.0	YES
4-Chlorotoluene	19.7	20.0	13.0-27.0	YES
tert-Butylbenzene	19.3	20.0	13.0-27.0	YES

NOTE: Results for surrogate spike compounds 1,2-Dichloroethane-d4, Fluorobenzene, 4-Bromofluorobenzene are expressed as rounded % recovery

DHR12 0119

Lancaster Laboratories
GC/MS Volatiles Method 624 Check Sample Summary

File: md21c01.d Injected: 12/21/11 11:29 Method: EPA 624
Inst: HP06720 Sample: VSTD020 Matrix/level: W/L

COMPOUND NAME	CONC (UG/L)	TRUE CONC (UG/L)	LIMITS (UG/L)	MEETS REQUIREMENTS
1,2,4-Trimethylbenzene	19.6	20.0	13.0-27.0	YES
sec-Butylbenzene	19.4	20.0	13.0-27.0	YES
p-Isopropyltoluene	19.1	20.0	13.0-27.0	YES
1,3-Dichlorobenzene	19.6	20.0	14.6-25.4	YES
1,4-Dichlorobenzene	19.7	20.0	12.6-27.4	YES
Benzyl Chloride	18.9	20.0	13.0-27.0	YES
n-Butylbenzene	20.2	20.0	13.0-27.0	YES
1,2-Dichlorobenzene	19.6	20.0	12.6-27.4	YES
1,2-Dibromo-3-Chloropropane	17.1	20.0	13.0-27.0	YES
1,2,4-Trichlorobenzene	15.5	20.0	13.0-27.0	YES
Hexachlorobutadiene	12.9	20.0	13.0-27.0	NO
Naphthalene	11.6	20.0	13.0-27.0	NO
1,2,3-Trichlorobenzene	12.3	20.0	13.0-27.0	NO
1,2-Dichloroethane-d4	83	30	76-114	YES
1,2-Dichloroethane-d4(2)	82	30	76-114	YES
Fluorobenzene	104	30	80-120	YES
4-Bromofluorobenzene	97	30	86-115	YES
4-Bromofluorobenzene(2)	93	30	86-115	YES

NOTE: Results for surrogate spike compounds 1,2-Dichloroethane-d4, Fluorobenzene, 4-Bromofluorobenzene are expressed as rounded % recovery

BHR12 0128

Lancaster Laboratories

Continuing Calibration Internal Standard Check

Initial Calibration Standards:

/chem/HP06720.i/11dec13a.b/md13i05.d
/chem/HP06720.i/11dec13a.b/md13i04.d
/chem/HP06720.i/11dec13a.b/md13i03.d
/chem/HP06720.i/11dec13a.b/md13i02.d
/chem/HP06720.i/11dec13a.b/md13i01.d

File /chem/HP06720.i/11dec13a.b/md13i04.d is Mid Level Calibration Standard used for comparison.

Current Continuing Calibration Standard:

/chem/HP06720.i/11dec21a.b/md21c01.d

RT Summary

Internal Standard Name	File ID: md21c01.d	ICAL RT	In Spec
Bromochloromethane	5.579	5.544	Yes
1,4-Difluorobenzene	7.150	7.109	Yes
2-Bromo-1-chloropropane	9.431	9.402	Yes

A "No" indicates the retention time is greater than 30 seconds from the referenced ICAL standard.

Area Summary

Internal Standard Name	File ID: md21c01.d	ICAL Area	Low Limit	High Limit	In Spec
Bromochloromethane	125451	99646	49823	199292	Yes
1,4-Difluorobenzene	654084	648918	324459	1297836	Yes
2-Bromo-1-chloropropane	133745	121709	60854	243418	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

Comments: _____

BHRT2 #121

report generated on 12/21/2011 at 13:06

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_DHR12___

Lab File ID (Standard): ad29c01.d Date Analyzed: 12/29/11

Instrument ID: HP09685 Time Analyzed: 10:19

Matrix: (soil/water) SOIL Level: (low/med) LOW Column: (pack/cap) CAP

		IS1(FBZ)		IS2(CBZ)		IS3(DCB)		IS4(TBA)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	1184677	7.419	875239	10.960	513309	12.858	202941	3.958
	UPPER LIMIT	2369354	7.919	1750478	11.460	1026618	13.358	405882	4.458
	LOWER LIMIT	592338	6.919	437620	10.460	256654	12.358	101470	3.458
	LAB SAMPLE ID								
01	VBLKA87	1088770	7.419	812435	10.960	466653	12.858	169592	3.970
02	LCSA87	1144873	7.413	852307	10.960	507115	12.858	196872	3.952
03	LCDA87	1169241	7.413	862145	10.960	508240	12.858	163890	3.957
04	LCS1A87	1168710	7.413	857660	10.960	493536	12.858	194059	3.952
05	LCD1A87	1150927	7.413	843111	10.960	488386	12.858	187906	3.958
06	6504234	1113203	7.419	837048	10.960	481503	12.858	279045	3.970
07	6504235	1035444	7.413	763119	10.960	413084	12.858	190363	3.958
08	6503333RE	1014399	7.419	542866	10.960	146998 *	12.858	237651	3.958
09	6502136RE	870766	7.413	422042*	10.960	111866 *	12.858	157397	3.945
10	6503456	1164869	7.413	850213	10.960	456032	12.858	202473	3.958
11	6503457	1125202	7.413	814903	10.960	421009	12.858	196437	3.952
12	6503538	1207288	7.419	885470	10.960	501385	12.858		
13	6509827	1094303	7.413	709436	10.960	259768	12.858		
14	6509828	999196	7.413	688090	10.960	285186	12.858		
15	6509829	975201	7.413	743011	10.960	345939	12.858		
16	6509830	1298326	7.419	962446	10.960	542287	12.858		
17	6509831	1286721	7.419	959952	10.960	535205	12.858		
18	6509832	978758	7.413	749655	10.960	419426	12.858		
19	6509837	1241705	7.413	917409	10.960	482705	12.858		
20	6509838	1249102	7.413	882476	10.960	375689	12.858		
21	6509839	1344918	7.413	987154	10.960	544960	12.858		
22	6509840	1132362	7.413	862149	10.960	463845	12.858		

IS1 (FBZ)=Fluorobenzene
IS2 (CBZ)=Chlorobenzene-d5
IS3 (DCB)=1,4-Dichlorobenzene-d4
IS4 (TBA)=t-Butyl Alcohol-d10

UPPER LIMIT = + 100%
of internal standard area.
LOWER LIMIT = - 50%
of internal standard area.

Column used to flag values outside QC limits with an asterisk
* Values outside of QC limits.

DHR12 #123

FORM VIII VOA

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_DHR12___

Lab File ID (Standard): ad29c01.d Date Analyzed: 12/29/11

Instrument ID: HP09685 Time Analyzed: 10:19

Matrix: (soil/water) SOIL Level: (low/med) LOW Column: (pack/cap) CAP

		IS1(FBZ) AREA #	RT #	IS2(CBZ) AREA #	RT #	IS3(DCB) AREA #	RT #	IS4(TBA) AREA #	RT #
	12 HOUR STD	1184677	7.419	875239	10.960	513309	12.858	202941	3.958
	UPPER LIMIT	2369354	7.919	1750478	11.460	1026618	13.358	405882	4.458
	LOWER LIMIT	592338	6.919	437620	10.460	256654	12.358	101470	3.458
	LAB SAMPLE ID								
23	6509842	1296455	7.419	924617	10.960	414289	12.858		
24	6509845	1121129	7.413	860878	10.960	467344	12.858		

IS1 (FBZ)=Fluorobenzene
IS2 (CBZ)=Chlorobenzene-d5
IS3 (DCB)=1,4-Dichlorobenzene-d4
IS4 (TBA)=t-Butyl Alcohol-d10

UPPER LIMIT = + 100% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

Column used to flag values outside QC limits with an asterisk
* Values outside of QC limits.

FORM VIII VOA

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_DHR12___

Lab File ID (Standard): rd29c10.d Date Analyzed: 12/29/11

Instrument ID: HP07566 Time Analyzed: 20:54

Matrix: (soil/water) SOIL Level: (low/med) MED Column: (pack/cap) CAP

		IS1(FBZ)		IS2(CBZ)		IS3(DCB)		IS4(TBA)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	1272268	7.428	937624	10.967	393379	12.860	165470	3.991
	UPPER LIMIT	2544536	7.928	1875248	11.467	786758	13.360	330940	4.491
	LOWER LIMIT	636134	6.928	468812	10.467	196690	12.360	82735	3.491
	LAB SAMPLE ID								
01	VBLKR63	1222688	7.436	917719	10.969	380243	12.858	151029	3.989
02	LCSR63	1231064	7.433	919191	10.969	388124	12.859	154934	3.994
03	LCDR63	1242768	7.433	930674	10.969	396424	12.859	158466	3.984
04	LCS1R63	1185256	7.434	897753	10.970	368982	12.860	151602	3.975
05	LCD1R63	1206785	7.436	907171	10.969	373660	12.862	141241	3.980
06	6509479	1165193	7.436	893440	10.969	375955	12.862		
07	6504793	1246399	7.434	885084	10.970	356877	12.860	134207	3.978
08	6507320DL	1238098	7.434	870974	10.970	350899	12.860	139774	3.984
09	6507324	1239275	7.433	886778	10.969	348075	12.862	132054	3.980
10	6507326	1231381	7.434	874953	10.970	342907	12.860	123015	3.981
11	6507330	1231618	7.432	879773	10.968	359372	12.861	137629	3.999
12	6503455	1248727	7.438	884380	10.970	359739	12.860	134601	3.988
13	6504469	1247743	7.436	641534	10.994	297062	12.875	154663	4.002
14	6503538DL	1313760	7.436	929997	10.969	368610	12.862		
15	6508032	1321783	7.433	958431	10.969	405765	12.863		
16	6508030	1328462	7.436	937528	10.972	391710	12.859		
17	6507324RE	1329973	7.434	958324	10.967	385297	12.860	165160	3.988
18	6507324DL	1289098	7.434	913583	10.973	363576	12.863	150715	3.981
19	6507326RE	1277541	7.437	913556	10.970	371855	12.860	152307	3.981
20	6507326DL	1277354	7.435	900283	10.971	359815	12.861	148612	3.973
21	6507320DLRE	1283513	7.436	899324	10.969	375914	12.862	152301	3.980
22	6503455RE	1250846	7.439	876070	10.968	352365	12.862	144121	3.973

IS1 (FBZ)=Fluorobenzene
IS2 (CBZ)=Chlorobenzene-d5
IS3 (DCB)=1,4-Dichlorobenzene-d4
IS4 (TBA)=t-Butyl Alcohol-d10

UPPER LIMIT = + 100%
of internal standard area.
LOWER LIMIT = - 50%
of internal standard area.

DHR12 8925

Column used to flag values outside QC limits with an asterisk
* Values outside of QC limits.

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_DHR12___

Lab File ID (Standard): rd29c10.d Date Analyzed: 12/29/11

Instrument ID: HP07566 Time Analyzed: 20:54

Matrix: (soil/water) SOIL Level: (low/med) MED Column: (pack/cap) CAP

	IS1(FBZ) AREA #	RT #	IS2(CBZ) AREA #	RT #	IS3(DCB) AREA #	RT #	IS4(TBA) AREA #	RT #
12 HOUR STD	1272268	7.428	937624	10.967	393379	12.860	165470	3.991
UPPER LIMIT	2544536	7.928	1875248	11.467	786758	13.360	330940	4.491
LOWER LIMIT	636134	6.928	468812	10.467	196690	12.360	82735	3.491
LAB SAMPLE ID								
23 6504469DL	1263833	7.431	878111	10.967	368718	12.861	143000	3.995
24 6508030DL	1263339	7.436	896857	10.969	364950	12.862		
25 6503378	1254352	7.438	887656	10.970	362696	12.860	143151	3.982
26 6509479RE	1248393	7.434	884830	10.970	356147	12.860		

IS1 (FBZ)=Fluorobenzene
IS2 (CBZ)=Chlorobenzene-d5
IS3 (DCB)=1,4-Dichlorobenzene-d4
IS4 (TBA)=t-Butyl Alcohol-d10

UPPER LIMIT = + 100%
of internal standard area.
LOWER LIMIT = - 50%
of internal standard area.

Column used to flag values outside QC limits with an asterisk
* Values outside of QC limits.

FORM VIII VOA

DHR12 0126

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_DHR12___

Lab File ID (Standard): md21c01.d Date Analyzed: 12/21/11

Instrument ID: HP06720 Time Analyzed: 11:29

Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

		IS1(BCM)		IS2(DFB)		IS3(BCP)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	24 HOUR STD	125451	5.579	654084	7.150	133745	9.431
	UPPER LIMIT	250902	6.079	1308168	7.650	267490	9.931
	LOWER LIMIT	62726	5.079	327042	6.650	66872	8.931
	LAB SAMPLE ID						
01	VBLKM77	126634	5.588	648733	7.153	132004	9.434
02	LCSM77	120293	5.585	620804	7.149	125049	9.430
03	LCDM77	120929	5.587	622891	7.152	125901	9.432
04	VC0.5 - VC0	118362	5.592	601709	7.151	122193	9.432
05	6499859	121075	5.593	631909	7.151	126545	9.432
06	6499860	123461	5.592	618925	7.157	125873	9.437
07	6498925	122615	5.592	623779	7.157	127879	9.438
08	6498925DL	122790	5.597	621333	7.156	122337	9.437
09	6498926	120019	5.597	612262	7.156	122858	9.437
10	6498927	117329	5.592	606169	7.157	120282	9.438
11	6499849	119152	5.598	614343	7.163	125133	9.438
12	6500695	116461	5.601	592126	7.160	120758	9.440
13	6500696	120687	5.598	610621	7.163	123495	9.444
14	6500696DL	121197	5.598	609301	7.163	124949	9.438
15	6501071	120590	5.604	602509	7.162	123752	9.443
16	6501072	119564	5.604	605106	7.169	123677	9.444
17	6501073	121026	5.604	599305	7.163	122326	9.438
18	6501809	117933	5.598	591659	7.163	123285	9.444
19	6501810	115851	5.598	579349	7.162	117234	9.443
20	6501833DL	114881	5.593	590944	7.163	121303	9.444
21	6503453	114410	5.598	582269	7.157	119505	9.438
22	6503454	110455	5.597	587573	7.150	121247	9.437

IS1 (BCM)=Bromochloromethane
IS2 (DFB)=1,4-Difluorobenzene
IS3 (BCP)=2-Bromo-1-chloropropane

UPPER LIMIT = + 100% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

Column used to flag values outside QC limits with an asterisk
* Values outside of QC limits.

DHR12 8127

FORM VIII VOA

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.: DHR12___

Lab File ID (Standard): md21c01.d Date Analyzed: 12/21/11

Instrument ID: HP06720 Time Analyzed: 11:29

Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

	IS1(BCM) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(BCP) AREA #	RT #
24 HOUR STD	125451	5.579	654084	7.150	133745	9.431
UPPER LIMIT	250902	6.079	1308168	7.650	267490	9.931
LOWER LIMIT	62726	5.079	327042	6.650	66872	8.931
LAB SAMPLE ID						
23 6505020	106578	5.586	574823	7.150	117575	9.437
24 6505021	111394	5.589	580841	7.148	118782	9.435
25 6505431	112593	5.587	598644	7.145	122880	9.432
26 6505432	112525	5.586	578393	7.151	119278	9.432
27 6501833	111440	5.567	579581	7.132	119437	9.418

IS1 (BCM)=Bromochloromethane
IS2 (DFB)=1,4-Difluorobenzene
IS3 (BCP)=2-Bromo-1-chloropropane

UPPER LIMIT = + 100% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

Column used to flag values outside QC limits with an asterisk
* Values outside of QC limits.

FORM VIII VOA

DHR12 0128

Preparation and Run Logs

DHR12 0129

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VOA Prep Summary by SDG: DHR12

21 - GC/MS Volatiles

Sample Number	Bottle Code	Prep Analysis#	Vial ID	Used for Analysis?	Collected	Prepared	Initial Weight	Final Weight	Net soil weight	Weight requirement	Meets require-ments?	Preserv. lot #	Preservative (volume)	Final Extraction Vol (mL)	Problem Codes
6503455	169A	07578	11386532	Y	12/16/11 11:11	12/17/11 12:33	29.32 g	35.02 g	5.70 g	4.50 g - 5.50 g	N	113471/V2102	MeOH w/surrogate (5 mL)	5.000	A
6503455	193A	08389	11386931	N	12/16/11 11:11	12/17/11 12:34	31.18 g	36.66 g	5.48 g	4.50 g - 5.50 g	Y	1134601	NaHSO4 (5 mL)	5.000	
6503455	193B	08389	11386941	N	12/16/11 11:11	12/17/11 12:34	31.11 g	36.46 g	5.35 g	4.50 g - 5.50 g	Y	1134601	NaHSO4 (5 mL)	5.000	
6503456	169A	07578	11386539	N	12/16/11 11:30	12/17/11 12:35	29.32 g	36.33 g	7.01 g	4.50 g - 5.50 g	N	113471/V2102	MeOH w/surrogate (5 mL)	5.000	A
6503456	193A	08389	11386929	Y	12/16/11 11:30	12/17/11 12:35	31.37 g	36.95 g	5.58 g	4.50 g - 5.50 g	N	1134601	NaHSO4 (5 mL)	5.000	A
6503456	193B	08389	11386924	N	12/16/11 11:30	12/17/11 12:36	31.54 g	37.75 g	6.21 g	4.50 g - 5.50 g	N	1134601	NaHSO4 (5 mL)	5.000	A
6503457	169A	07578	11386555	N	12/16/11 11:45	12/17/11 12:37	29.17 g	34.80 g	5.63 g	4.50 g - 5.50 g	N	113471/V2102	MeOH w/surrogate (5 mL)	5.000	A
6503457	193A	08389	11386932	N	12/16/11 11:45	12/17/11 12:38	31.48 g	37.33 g	5.85 g	4.50 g - 5.50 g	N	1134601	NaHSO4 (5 mL)	5.000	A
6503457	193B	08389	11386928	Y	12/16/11 11:45	12/17/11 12:38	31.38 g	37.09 g	5.71 g	4.50 g - 5.50 g	N	1134601	NaHSO4 (5 mL)	5.000	A

Final Extraction Vol (mL) = Preservative Vol + Added MeOH (if applicable)

KEY to problem codes:

A = wt. does not meet requirements B = vial leaked C# where # = volume of MeOH added in mL due to sample not covered/matrix (lot #)
D = sampler not full E = effervescence observed F = pH >= 2 G = headspace in container

Lancaster Laboratories
Runlog for Hewelet Packard GC/MS System HP09685 **HP #22**

** Shift #1 Analyst:_____** Shift #2 Analyst:___SEJ_____** Shift #3 Analyst:___SAS_____*

Comment Code: R = Reinjection necessary X = Sample sent to be reextracted
S = Surrogate problem I = Internal Standard problem
NU = Not used F = Further dilution required
MR = Meets requirements IUO = Internal use only
Cz = Confirms z, (z = S, I or X) T = Injected outside valid tune period

Other problems or comments are as follows:

_____8260 LOW LEVEL SOILS_____
_____
_____
_____

Data Directory Path is - D:\data\11AUG05A\

FILE	SAMPLE	LLI#	DATE	TIME	BATCH	D.F.	NOTES
AG05T01.D	BFB MAR31-11	50NG BFB	05 Aug 11	16:24			MR
AG05I01.D	VSTD300	VSTD300	05 Aug 11	16:46			MR
AG05I02.D	VSTD100	VSTD100	05 Aug 11	17:09			MR
AG05I03.D	VSTD050	VSTD050	05 Aug 11	17:31			MR
AG05I04.D	VSTD020	VSTD020	05 Aug 11	17:54			MR
AG05I05.D	VSTD010	VSTD010	05 Aug 11	18:16			MR
AG05I06.D	VSTD004	VSTD004	05 Aug 11	18:39			MR
AG05M01.D	VSTD001	VSTD0001	05 Aug 11	19:01			MR
AG05I11.D	VSTD300	VSTD300	05 Aug 11	19:24			MR
AG05I12.D	VSTD100	VSTD100	05 Aug 11	19:46			MR
AG05I13.D	VSTD050	VSTD050	05 Aug 11	20:09			MR
AG05I14.D	VSTD020	VSTD020	05 Aug 11	20:31			MR
AG05I15.D	VSTD010	VSTD010	05 Aug 11	20:54			MR
AG05I16.D	VSTD004	VSTD004	05 Aug 11	21:17			MR
AG05M11.D	VSTD001	VSTD0001	05 Aug 11	21:39			MR
AG05B01.D	VBLKA00	VBLKA00	05 Aug 11	22:02	A112171AA		MR
AG05L01.D	LCSA00	LCSA00	05 Aug 11	22:24	A112171AA		NU
AG05L02.D	LCS1A00	LCS1A00	05 Aug 11	22:47	A112171AA		MR
AG05S01.D	XXXXXRE	6355784RE	05 Aug 11	23:09	A112171AA		CI
AG05L03.D	LCDA00	LCDA00	05 Aug 11	23:53	A112171AA		MR
AG05L04.D	LCDA00	LCDA00	06 Aug 11	00:18	A112171AA		MR
AG05L05.D	LCD1A00	LCD1A00	06 Aug 11	00:41	A112171AA		MR

Lancaster Laboratories
Runlog for Hewelet Packard GC/MS System HP09685 **HP #22**

** Shift #1 Analyst:_____** Shift #2 Analyst:___SJ_____** Shift #3 Analyst:_____*

Comment Code: R = Reinjection necessary X = Sample sent to be reextracted
S = Surrogate problem I = Internal Standard problem
NU = Not used F = Further dilution required
MR = Meets requirements IDO = Internal use only
Cz = Confirms z, (z = S, I or X) T = Injected outside valid tune period

Other problems or comments are as follows:

_____8260 LOW LEVEL SOILS_____

_____

_____

_____

Data Directory Path is - D:\data\11AUG29A\

FILE	SAMPLE	LLI#	DATE	TIME	BATCH	D.F.	NOTES
AG29T01.D	BFB MAR31-11	50NG BFB	29 Aug 11	16:52			MR
AG29I01.D	VSTD300	VSTD300	29 Aug 11	17:17			MR
AG29I02.D	VSTD100	VSTD100	29 Aug 11	17:40			MR
AG29I03.D	VSTD050	VSTD050	29 Aug 11	18:03			MR
AG29I04.D	VSTD020	VSTD020	29 Aug 11	18:26			MR
AG29I05.D	VSTD010	VSTD010	29 Aug 11	18:49			MR
AG29I06.D	VSTD004	VSTD004	29 Aug 11	19:12			MR
AG29M01.D	VSTD001	VSTD001	29 Aug 11	19:34			MR
AG29C01.D	VSTD050	VSTD050	29 Aug 11	20:04			MR
AG29B01.D	VBLKA16	VBLKA16	29 Aug 11	20:27	A112411AA		MR
AG29L01.D	LCSA16	LCSA16	29 Aug 11	21:03	A112411AA		MR
AG29L02.D	LCDA16	LCDA16	29 Aug 11	21:26	A112411AA		MR
AG29L03.D	LCS1A16	LCS1A16	29 Aug 11	22:01	A112411AA		MR
AG29L04.D	LCD1A16	LCD1A16	29 Aug 11	22:24	A112411AA		MR

Lancaster Laboratories
Runlog for Hewelet Packard GC/MS System HP09685 **HP #22**

** Shift #1 Analyst: ERS ** Shift #2 Analyst: _____ ** Shift #3 Analyst: SAS *

Comment Code:
R = Reinjection necessary
S = Surrogate problem
NU = Not used
MR = Meets requirements
Cz = Confirms z, (z = S, I or X)
X = Sample sent to be reextracted
I = Internal Standard problem
F = Further dilution required
IUO = Internal use only
T = Injected outside valid tune period

Other problems or comments are as follows:

8260B LOW SOILS - NAHSO4 PRESERVED

*MANUALLY EDITED

Data Directory Path is - D:\data\11DEC29A\

FILE	SAMPLE	LLI#	DATE	TIME	BATCH	D.F.	NOTES
AD29T01.D	1uL BFB SEPT28-11	50NG BFB	29 Dec 11	09:51			MR
AD29C01.D	VSTD050	VSTD050	29 Dec 11	10:19			MR
AD29C02.D	VSTD050	VSTD050	29 Dec 11	10:43			MR
AD29B01.D	VBLKA87	VBLKA87	29 Dec 11	11:06	A113631AA		NU
AD29L01.D	VBLKA87*	VBLKA87*	29 Dec 11	11:28	A113631AA		MR
AD29L02.D	LCSA87	LCSA87	29 Dec 11	12:01	A113631AA		MR
AD29L03.D	LCDA87	LCDA87	29 Dec 11	12:26	A113631AA		MR
AD29L04.D	LCS1A87	LCS1A87	29 Dec 11	13:02	A113631AA		MR
AD29L05.D	LCD1A87	LCD1A87	29 Dec 11	13:24	A113631AA		MR
AD29S01.D	XXXXX	6504234	29 Dec 11	14:09	A113631AA		MR
AD29S02.D	XXXXX	6504235	29 Dec 11	14:31	A113631AA		MR
AD29S03.D	XXXXXRE	6503333RE	29 Dec 11	14:54	A113631AA		CSI
AD29S04.D	XXXXXRE	6502136RE	29 Dec 11	15:17	A113631AA		CSI
AD29S05.D	XXXXX	6503456	29 Dec 11	15:40	A113631AA		MR
AD29S06.D	XXXXX	6503457	29 Dec 11	16:03	A113631AA		MR
AD29S07.D	XXXXX	6503538	29 Dec 11	16:25	A113631AA		F
AD29S08.D	XXXXX	6509827	29 Dec 11	16:48	A113631AA		MR
AD29S09.D	XXXXX	6509828	29 Dec 11	17:11	A113631AA		MR
AD29S10.D	XXXXX	6509829	29 Dec 11	17:33	A113631AA		MR
AD29S11.D	XXXXX	6509830	29 Dec 11	17:56	A113631AA		MR
AD29S12.D	XXXXX	6509831	29 Dec 11	18:18	A113631AA		MR
AD29S13.D	XXXXX	6509832	29 Dec 11	18:41	A113631AA		S
AD29S14.D	XXXXX	6509837	29 Dec 11	19:04	A113631AA		MR
AD29S15.D	XXXXX	6509838	29 Dec 11	19:27	A113631AA		MR
AD29S16.D	XXXXX	6509839	29 Dec 11	19:49	A113631AA		MR
AD29S17.D	XXXXX	6509840	29 Dec 11	20:12	A113631AA		MR
AD29S18.D	XXXXX	6509842	29 Dec 11	20:35	A113631AA		MR
AD29S19.D	XXXXX	6509845	29 Dec 11	20:57	A113631AA		MR
AD29X01.D	VBLKA87	VBLKA87	29 Dec 11	22:46	A113631AA		NU

DHR12 0133

Lancaster Laboratories
Runlog for Hewelet Packard GC/MS System HP07566 **HP #15**

** Shift #1 Analyst: LCT ** Shift #2 Analyst: _____ ** Shift #3 Analyst: _____ *

Comment Code:

R =	Reinjection necessary	X =	Sample sent to be reextracted
S =	Surrogate problem	I =	Internal Standard problem
NU =	Not used	F =	Further dilution required
MR =	Meets requirements	IUO =	Internal use only
Cz =	Confirms z, (z = S, I or X)	T =	Injected outside valid tune period

Other problems or comments are as follows:

_____

_____

_____

_____

Data Directory Path is - C:\HPCHEM\1\DATA\11OCT18I\

FILE	SAMPLE	LLI#	DATE	TIME	BATCH	D.F.	NOTES
RC18T01.D	1uLBFB SEP23-11	50NG BFB	18 Oct 2011	4:26			MR
RC18I01.D	VSTD300	VSTD300	18 Oct 2011	4:49			NU
RC18I02.D	VSTD100	VSTD100	18 Oct 2011	5:13			NU
RC18I03.D	VSTD050	VSTD050	18 Oct 2011	5:35			NU
RC18I04.D	VSTD020	VSTD020	18 Oct 2011	5:58			NU
RC18I05.D	VSTD010	VSTD010	18 Oct 2011	6:21			NU
RC18I06.D	VSTD004	VSTD004	18 Oct 2011	6:44			NU
RC18M01.D	VSTD001	1PPB MDL	18 Oct 2011	7:07		50	NU
RC18V03.D	RSMICV	RSMICV	18 Oct 2011	7:30			NU
RC18I11.D	VSTD300	VSTD300	18 Oct 2011	7:53			MR
RC18I12.D	VSTD100	VSTD100	18 Oct 2011	8:16			MR
RC18I13.D	VSTD050	VSTD050	18 Oct 2011	8:39			MR
RC18I14.D	VSTD020	VSTD020	18 Oct 2011	9:02			MR
RC18I15.D	VSTD010	VSTD010	18 Oct 2011	9:25			MR
RC18I16.D	VSTD004	VSTD004	18 Oct 2011	9:48			MR
RC18M11.D	VSTD001	1PPB MDL	18 Oct 2011	10:11		50	MR
RC18V11.D	RLGICV	RLGICV	18 Oct 2011	10:33			MR

Lancaster Laboratories
Runlog for Hewelet Packard GC/MS System HP07566 **HP #15**

** Shift #1 Analyst:_____** Shift #2 Analyst:___KEK____** Shift #3 Analyst:_____*

Comment Code: R = Reinjection necessary X = Sample sent to be reextracted

S = Surrogate problem I = Internal Standard problem

NU = Not used F = Further dilution required

MR = Meets requirements ICO = Internal use only

Cz = Confirms z, (z = S, I or X) T = Injected outside valid tune period

Other problems or comments are as follows:

_____

_____

_____

_____

Data Directory Path is - C:\HPCHEM\1\DATA\11OCT18H\

FILE	SAMPLE	LLI#	DATE	TIME	BATCH	D.F.	NOTES
RC18T03.D	1uLBFB SEP23-11	50NG BFB	18 Oct 2011	17:40			MR
RC18I30.D	VSTD300	VSTD300	18 Oct 2011	18:02			MR
RC18I31.D	VSTD100	VSTD100	18 Oct 2011	18:25			MR
RC18I32.D	VSTD050	VSTD050	18 Oct 2011	18:48			MR
RC18I33.D	VSTD020	VSTD020	18 Oct 2011	19:11			MR
RC18I34.D	VSTD010	VSTD010	18 Oct 2011	19:33			MR
RC18I35.D	VSTD004	VSTD004	18 Oct 2011	19:56			MR
RC18M31.D	VSTD001	1PPB MDL	18 Oct 2011	20:19			MR
RC18V31.D	RSMICV	RSMICV	18 Oct 2011	20:45			MR

Lancaster Laboratories
Runlog for Hewelet Packard GC/MS System HP07566 **HP #15**

** Shift #1 Analyst: KEKL ** Shift #2 Analyst: KEK ** Shift #3 Analyst: SAS *

Comment Code:
R = Reinjection necessary
S = Surrogate problem
NU = Not used
MR = Meets requirements
Cz = Confirms z, (z = S, I or X)
X = Sample sent to be reextracted
I = Internal Standard problem
F = Further dilution required
IUO = Internal use only
T = Injected outside valid tune period

Other problems or comments are as follows:

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*
* #MANUAL EDIT *

Data Directory Path is - C:\HPCHEM\1\DATA\11DEC29B\

FILE	SAMPLE	LLI#	DATE	TIME	BATCH	D.F.	NOTES
RD29T02.D	1uLBFB SEP23-11	50NG BFB	29 Dec 2011	20:29			MR
RD29C10.D	VSTD050	VSTD050	29 Dec 2011	20:54		50	MR
RD29C11.D	VSTD050	VSTD050	29 Dec 2011	21:17		50	MR
RD29B10.D	VBLKR63	VBLKR63	29 Dec 2011	21:40	R113632AA	50	MR
RD29L10.D	LCSR63	LCSR63	29 Dec 2011	22:03	R113632AA	50	MR
RD29L11.D	LCDR63	LCDR63	29 Dec 2011	22:26	R113632AA	50	MR
RD29L12.D	LCS1R63	LCS1R63	29 Dec 2011	22:49	R113632AA	50	MR
RD29L13.D	LCD1R63	LCD1R63	29 Dec 2011	23:12	R113632AA	50	MR
RD29S30.D	XXXXX	6509479	29 Dec 2011	23:35	R113632AA	500	S
RD29XX1.D	XXXXX	BLANK	29 Dec 2011	23:57	R113632AA	500	NU
RD29S31.D	XXXXX	6504793	30 Dec 2011	00:21	R113632AA	50	MR
RD29S32.D	XXXXXDL	6507320DL	30 Dec 2011	00:43	R113632AA	50	S
RD29S33.D	XXXXX	6507324	30 Dec 2011	1:06	R113632AA	50	S,F
RD29S34.D	XXXXX	6507326	30 Dec 2011	1:29	R113632AA	50	S,F
RD29S35.D	XXXXX	6507330	30 Dec 2011	1:52	R113632AA	50	S
RD29S36.D	XXXXX	6503455	30 Dec 2011	2:15	R113632AA	50	S
RD29S37.D	XXXXX	6504469	30 Dec 2011	2:38	R113632AA	50	F
RD29S38.D	XXXXX	6503378	30 Dec 2011	3:00	R113632AA	50	NUCO
RD29S39.D	XXXXXDL	6503538DL	30 Dec 2011	3:28	R113632AA	50	MR
RD29S40.D	XXXXX	6508032	30 Dec 2011	3:51	R113632AA	500	S,F
RD29S41.D	XXXXX	6508030	30 Dec 2011	4:14	R113632AA	1000	F
RD29S42.D	XXXXXRE	6507324RE	30 Dec 2011	4:36	R113632AA	50	CS#
RD29S43.D	XXXXXDL	6507324DL	30 Dec 2011	5:00	R113632AA	500	MR#
RD29S44.D	XXXXXRE	6507324RE	30 Dec 2011	5:23	R113632AA	50	CS#
RD29S45.D	XXXXXDL	6507326DL	30 Dec 2011	5:45	R113632AA	500	MR#
RD29S46.D	XXXXXDLRE	6507320DLRE	30 Dec 2011	6:13	R113632AA	50	CS#
RD29S47.D	XXXXXRE	6503455	30 Dec 2011	6:36	R113632AA	50	CS
RD29S48.D	XXXXXDL	6504469DL	30 Dec 2011	6:59	R113632AA	2000	F
RD29S49.D	XXXXXDL	6508030DL	30 Dec 2011	7:22	R113632AA	5000	MR
RD29S50.D	XXXXX	6503378	30 Dec 2011	7:45	R113632AA	50	MR
RD29S51.D	XXXXXRE	6509479RE	30 Dec 2011	8:09	R113632AA	500	CS

Lancaster Laboratories
Runlog for Hewelet Packard GC/MS System HP06720 **HP #10**

** Shift #1 Analyst: JML ** Shift #2 Analyst: _____ ** Shift #3 Analyst: _____ *

Comment Code:

R =	Reinjection necessary	X =	Sample sent to be reextracted
S =	Surrogate problem	I =	Internal Standard problem
NU =	Not used	F =	Further dilution required
MR =	Meets requirements	IUO =	Internal use only
Cz =	Confirms z, (z = S, I or X)	T =	Injected outside valid tune period

Other problems or comments are as follows:

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*624_WATERS

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Data Directory Path is - C:\HPCHEM\1\DATA\11DEC13A\

FILE	SAMPLE	LLI#	DATE	TIME	BATCH	D.F.	NOTES
MD13T01.D	BFBSEP28-11	50NG BFB	13 Dec 11	9:39			MR
MD13X01.D	CLNBLK	CLNBLK	13 Dec 11	9:56			NU
MD13C01.D	VSTD020	VSTD020	13 Dec 11	10:21			MR
MD13I01.D	VSTD300	VSTD300	13 Dec 11	10:46			MR
MD13I02.D	VSTD100	VSTD100	13 Dec 11	11:12			MR
MD13I03.D	VSTD050	VSTD050	13 Dec 11	11:37			MR
MD13I04.D	VSTD020	VSTD020	13 Dec 11	12:03			MR
MD13I05.D	VSTD004	VSTD004	13 Dec 11	12:28			MR
MD13M01.D	MDL001	MDL001	13 Dec 11	12:54			MR
MD13B01.D	VBLKM70	VBLKM70	13 Dec 11	13:19	M113471AA		MR
MD13L01.D	LCSM70	LCSM70	13 Dec 11	13:44	M113471AA		MR
MD13L02.D	LCS1M70	LCS1M70	13 Dec 11	14:10	M113471AA		MR

DHR12 0137

Lancaster Laboratories
Runlog for Hewelet Packard GC/MS System HP06720 **HP #10**

** Shift #1 Analyst: JML ** Shift #2 Analyst: _____ ** Shift #3 Analyst: _____ *

Comment Code:

R =	Reinjection necessary	X =	Sample sent to be reextracted
S =	Surrogate problem	I =	Internal Standard problem
NU =	Not used	F =	Further dilution required
MR =	Meets requirements	IUO =	Internal use only
Cz =	Confirms z, (z = S, I or X)	T =	Injected outside valid tune period

Other problems or comments are as follows:

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*624_WATERS

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Data Directory Path is - C:\HPCHEM\1\DATA\11DEC21A\

FILE	SAMPLE	LLI#	DATE	TIME	BATCH	D.F.	NOTES
MD21T01.D	BFBSEP28-11	50NG BFB	21 Dec 11	11:05			MR
MD21C01.D	VSTD020	VSTD020	21 Dec 11	11:29			MR
MD21B01.D	VBLKM77	VBLKM77	21 Dec 11	11:55	M113551AA		MR
MD21L01.D	LCSM77	LCSM77	21 Dec 11	12:20	M113551AA		MR
MD21L02.D	LCDM77	LCDM77	21 Dec 11	12:45	M113551AA		MR
MD21VC1.D	VC0.5	VC0.5	21 Dec 11	13:10	M113531AA		MR
MD21S01.D	XXXXX	6499859	21 Dec 11	13:56	M113551AA		MR
MD21S02.D	XXXXX	6499860	21 Dec 11	14:21	M113551AA		MR
MD21S03.D	XXXXX	6498925	21 Dec 11	14:46	M113551AA	10	F
MD21S04.D	XXXXXDL	6498925DL	21 Dec 11	15:12	M113551AA	100	MR
MD21S05.D	XXXXX	6498926	21 Dec 11	15:37	M113551AA		MR
MD21S06.D	XXXXX	6498927	21 Dec 11	16:02	M113551AA		MR
MD21S07.D	XXXXX	6499849	21 Dec 11	16:28	M113551AA	10	MR
MD21S08.D	XXXXX	6500695	21 Dec 11	16:53	M113551AA		MR
MD21S09.D	XXXXXDL	6500696DL	21 Dec 11	17:18	M113551AA		F
MD21S10.D	XXXXXDL	6500696DL	21 Dec 11	17:43	M113551AA	10	MR
MD21S11.D	XXXXX	6501071	21 Dec 11	18:09	M113551AA		MR
MD21S12.D	XXXXX	6501072	21 Dec 11	18:34	M113551AA		MR
MD21S13.D	XXXXX	6501073	21 Dec 11	18:59	M113551AA		MR
MD21S14.D	XXXXX	6501809	21 Dec 11	19:25	M113551AA		MR
MD21S15.D	XXXXX	6501810	21 Dec 11	19:50	M113551AA		MR
MD21S16.D	XXXXX	6501833	21 Dec 11	20:15	M113551AA	5	F
MD21S17.D	XXXXXDL	6501833DL	21 Dec 11	20:41	M113551AA	50	NU
MD21S18.D	XXXXX	6503453	21 Dec 11	21:06	M113551AA		MR
MD21S19.D	XXXXX	6503454	21 Dec 11	21:32	M113551AA		MR
MD21S20.D	XXXXX	6505020	21 Dec 11	21:57	M113551AA		MR
MD21S21.D	XXXXX	6505021	21 Dec 11	22:22	M113551AA		MR
MD21S22.D	XXXXX	6505431	21 Dec 11	22:48	M113551AA		MR
MD21S23.D	XXXXX	6505432	21 Dec 11	23:14	M113551AA		MR
MD21X01.D	BLK	BLK	22 Dec 11	7:14			NU
MD21S24.D	XXXXX	6501833	22 Dec 11	7:39	M113551AA		MR

DHR12 0130

Semivolatiles by 625

Case Narrative
Conformance/Nonconformance
Summary

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Case Narrative

CLIENT: CH2M Hill, Inc.
SDG: DHR12

GC/MS Semivolatiles
Fraction: Semivolatiles by 625

Method 625

Sample #	Client ID	Matrix Liquid	Solid	DF	Comments
6503454	HGR-IDW-W1	X		1	

See QC Reference List for Associated Batch QC Samples.

SAMPLE RECEIPT:

Samples were received in good condition and within temperature requirements.

HOLDING TIME:

All holding times were met.

PREPARATION/EXTRACTION/DIGESTION:

No problems were encountered.

CALIBRATION/STANDARDIZATION:

All criteria were met.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

LCS/LCSD

Sample number 6503454: The recovery for 2-chloronaphthalene in the Laboratory Control Spikes is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the analyte is not detected in the sample, the data is reported. The high recovery indicates a possible high bias and has no impact on the sample results.

DHR12 0141

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Case Narrative

CLIENT: CH2M Hill, Inc.
SDG: DHR12

GC/MS Semivolatiles
Fraction: Semivolatiles by 625

MS/MSD

Site specific matrix QC samples were not submitted for this SDG. The batch matrix QC was performed on samples from another project. Therefore the matrix effects would not be relevant and matrix QC is not provided in the data package. Laboratory spike data (LCS) are provided.

SAMPLE ANALYSIS:

No problems were encountered with the analysis of the samples.

DATA INTERPRETATION:

No further interpretation is necessary for the data submitted.

Abbreviation Key	
UNSPK = Unspiked (for MS/MSD)	LOQ = Limit of Quantitation
MS = Matrix Spike	MDL = Method Detection Limit
MSD = Matrix Spike Duplicate	ND = Not Detected
BKG = Background (for Duplicate)	J = Estimated Value
D = Duplicate (DUP)	E= out of calibration range
LCS = Lab Control Sample	RE = Repreparation/Reanalysis
LCSD = Lab Control Sample Duplicate	* = Out of Specification

Narrative Reviewed and Approved 1/19/12 (Date) by Lydia C. Steinke
Specialist

DHR12 8842

Quality Control and Calibration Summary Forms

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LOQ/MDL Summary
GC/MS Semivolatiles

SDG: DHR12

Fraction: Semivolatiles by 625

10334: Method 625 Analyte Name	Default MDL	Default LOQ	Units
N-Nitrosodimethylamine	2	5	ug/l
Phenol	0.4	5	ug/l
bis(2-Chloroethyl)ether	0.4	5	ug/l
2-Chlorophenol	0.3	5	ug/l
1,3-Dichlorobenzene	0.3	5	ug/l
1,4-Dichlorobenzene	0.3	5	ug/l
1,2-Dichlorobenzene	0.3	5	ug/l
bis(2-Chloroisopropyl)ether	0.3	5	ug/l
N-Nitroso-di-n-propylamine	0.4	5	ug/l
Hexachloroethane	0.4	5	ug/l
Nitrobenzene	0.5	5	ug/l
Isophorone	0.3	5	ug/l
2-Nitrophenol	0.4	5	ug/l
2,4-Dimethylphenol	0.3	5	ug/l
bis(2-Chloroethoxy)methane	0.5	5	ug/l
2,4-Dichlorophenol	0.3	5	ug/l
1,2,4-Trichlorobenzene	0.3	5	ug/l
Naphthalene	0.2	5	ug/l
Hexachlorobutadiene	0.8	5	ug/l
4-Chloro-3-methylphenol	0.3	5	ug/l
Hexachlorocyclopentadiene	2	15	ug/l
2,4,6-Trichlorophenol	0.7	5	ug/l
2-Chloronaphthalene	0.2	5	ug/l
Dimethylphthalate	1	5	ug/l
2,6-Dinitrotoluene	0.3	5	ug/l
Acenaphthylene	0.3	5	ug/l
Acenaphthene	0.3	5	ug/l
2,4-Dinitrophenol	10	30	ug/l
4-Nitrophenol	5	10	ug/l
2,4-Dinitrotoluene	0.4	5	ug/l
Diethylphthalate	0.3	5	ug/l
4-Chlorophenyl-phenylether	0.3	5	ug/l
Fluorene	0.3	5	ug/l
4,6-Dinitro-2-methylphenol	4	15	ug/l
N-Nitrosodiphenylamine	0.3	5	ug/l
1,2-Diphenylhydrazine	0.2	5	ug/l
4-Bromophenyl-phenylether	0.3	5	ug/l
Hexachlorobenzene	1	5	ug/l
Pentachlorophenol	3	15	ug/l
Phenanthrene	0.2	5	ug/l
Anthracene	0.2	5	ug/l
Di-n-butylphthalate	0.5	5	ug/l
Fluoranthene	0.3	5	ug/l
Benzidine	20	60	ug/l
Pyrene	0.2	5	ug/l
Butylbenzylphthalate	0.8	5	ug/l
bis(2-Ethylhexyl)phthalate	1	5	ug/l

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LOQ/MDL Summary
GC/MS Semivolatiles

SDG: DHR12

Fraction: Semivolatiles by 625

10334: Method 625 Analyte Name	Default MDL	Default LOQ	Units
3,3'-Dichlorobenzidine	0.8	5	ug/l
Benzo(a)anthracene	0.2	5	ug/l
Chrysene	0.2	5	ug/l
Di-n-octylphthalate	0.5	5	ug/l
Benzo(b)fluoranthene	0.3	5	ug/l
Benzo(k)fluoranthene	0.3	5	ug/l
Benzo(a)pyrene	0.3	5	ug/l
Indeno(1,2,3-cd)pyrene	0.3	5	ug/l
Dibenz(a,h)anthracene	0.4	5	ug/l
Benzo(g,h,i)perylene	0.2	5	ug/l

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Quality Control Reference List
GC/MS Semivolatiles

CLIENT: CH2M Hill, Inc.
SDG: DHR12

Fraction: Semivolatiles by 625

Analysis	Batch Number	Sample Number	Analysis Date
Method 625	11355WAA625	SBLKWA355	12/22/2011 20:45:00
		355WALCS	12/22/2011 21:11:00
		355WALCSD	12/22/2011 21:37:00
		6503454	12/23/2011 08:46:00

DHR12 8346

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Quality Control Summary
Method Blank
GC/MS Semivolatiles
SDG: DHR12
Matrix: LIQUID

Fraction: Semivolatiles by 625

11355WAA625 / SBLKWA355 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
N-Nitrosodimethylamine	12/22/11	N.D.	ug/l	2	5
Phenol	12/22/11	N.D.	ug/l	0.4	5
bis(2-Chloroethyl)ether	12/22/11	N.D.	ug/l	0.4	5
2-Chlorophenol	12/22/11	N.D.	ug/l	0.3	5
1,3-Dichlorobenzene	12/22/11	N.D.	ug/l	0.3	5
1,4-Dichlorobenzene	12/22/11	N.D.	ug/l	0.3	5
1,2-Dichlorobenzene	12/22/11	N.D.	ug/l	0.3	5
bis(2-Chloroisopropyl)ether	12/22/11	N.D.	ug/l	0.3	5
N-Nitroso-di-n-propylamine	12/22/11	N.D.	ug/l	0.4	5
Hexachloroethane	12/22/11	N.D.	ug/l	0.4	5
Nitrobenzene	12/22/11	N.D.	ug/l	0.5	5
Isophorone	12/22/11	N.D.	ug/l	0.3	5
2-Nitrophenol	12/22/11	N.D.	ug/l	0.4	5
2,4-Dimethylphenol	12/22/11	N.D.	ug/l	0.3	5
bis(2-Chloroethoxy)methane	12/22/11	N.D.	ug/l	0.5	5
2,4-Dichlorophenol	12/22/11	N.D.	ug/l	0.3	5
1,2,4-Trichlorobenzene	12/22/11	N.D.	ug/l	0.3	5
Naphthalene	12/22/11	N.D.	ug/l	0.2	5
Hexachlorobutadiene	12/22/11	N.D.	ug/l	0.8	5
4-Chloro-3-methylphenol	12/22/11	N.D.	ug/l	0.3	5
Hexachlorocyclopentadiene	12/22/11	N.D.	ug/l	2	15
2,4,6-Trichlorophenol	12/22/11	N.D.	ug/l	0.7	5
2-Chloronaphthalene	12/22/11	N.D.	ug/l	0.2	5
Dimethylphthalate	12/22/11	N.D.	ug/l	1	5
2,6-Dinitrotoluene	12/22/11	N.D.	ug/l	0.3	5
Acenaphthylene	12/22/11	N.D.	ug/l	0.3	5
Acenaphthene	12/22/11	N.D.	ug/l	0.3	5
2,4-Dinitrophenol	12/22/11	N.D.	ug/l	10	30
4-Nitrophenol	12/22/11	N.D.	ug/l	5	10
2,4-Dinitrotoluene	12/22/11	N.D.	ug/l	0.4	5
Diethylphthalate	12/22/11	N.D.	ug/l	0.3	5
4-Chlorophenyl-phenylether	12/22/11	N.D.	ug/l	0.3	5
Fluorene	12/22/11	N.D.	ug/l	0.3	5
4,6-Dinitro-2-methylphenol	12/22/11	N.D.	ug/l	4	15
N-Nitrosodiphenylamine	12/22/11	N.D.	ug/l	0.3	5
1,2-Diphenylhydrazine	12/22/11	N.D.	ug/l	0.2	5
4-Bromophenyl-phenylether	12/22/11	N.D.	ug/l	0.3	5
Hexachlorobenzene	12/22/11	N.D.	ug/l	1	5
Pentachlorophenol	12/22/11	N.D.	ug/l	3	15
Phenanthrene	12/22/11	N.D.	ug/l	0.2	5
Anthracene	12/22/11	N.D.	ug/l	0.2	5
Di-n-butylphthalate	12/22/11	N.D.	ug/l	0.5	5
Fluoranthene	12/22/11	N.D.	ug/l	0.3	5
Benzidine	12/22/11	N.D.	ug/l	20	60
Pyrene	12/22/11	N.D.	ug/l	0.2	5

DHR12 5147

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Quality Control Summary
Method Blank
GC/MS Semivolatiles
SDG: DHR12
Matrix: LIQUID

Fraction: Semivolatiles by 625

11355WAA625 / SBLKWA355 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Butylbenzylphthalate	12/22/11	N.D.	ug/l	0.8	5
bis(2-Ethylhexyl)phthalate	12/22/11	N.D.	ug/l	1	5
3,3'-Dichlorobenzidine	12/22/11	N.D.	ug/l	0.8	5
Benzo(a)anthracene	12/22/11	N.D.	ug/l	0.2	5
Chrysene	12/22/11	N.D.	ug/l	0.2	5
Di-n-octylphthalate	12/22/11	N.D.	ug/l	0.5	5
Benzo(b)fluoranthene	12/22/11	N.D.	ug/l	0.3	5
Benzo(k)fluoranthene	12/22/11	N.D.	ug/l	0.3	5
Benzo(a)pyrene	12/22/11	N.D.	ug/l	0.3	5
Indeno(1,2,3-cd)pyrene	12/22/11	N.D.	ug/l	0.3	5
Dibenz(a,h)anthracene	12/22/11	N.D.	ug/l	0.4	5
Benzo(g,h,i)perylene	12/22/11	N.D.	ug/l	0.2	5

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Quality Control Summary
Surrogates
GC/MS Semivolatiles
SDG: DHR12
Matrix: LIQUID

Fraction: Semivolatiles by 625

11355WAA625	Nitrobenzene-d5		2-Fluorobiphenyl		Terphenyl-d14		Phenol-d6		2-Fluorophenol		2,4,6-Tribromophenol	
	Spike Added	100 ug/l	Spike Added	100 ug/l	Spike Added	100 ug/l	Spike Added	100 ug/l	Spike Added	100 ug/l	Spike Added	100 ug/l
Sample	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits
SBLKWA355	101	56 - 120	102	62 - 121	91	56 - 119	30	10 - 72	54	17 - 103	92	36 - 140
355WALCS	100	56 - 120	102	62 - 121	95	56 - 119	37	10 - 72	60	17 - 103	91	36 - 140
355WALCSD	105	56 - 120	104	62 - 121	95	56 - 119	38	10 - 72	62	17 - 103	93	36 - 140
6503454	99	56 - 120	99	62 - 121	90	56 - 119	38	10 - 72	60	17 - 103	82	36 - 140

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate (LCSD)

SDG: DHR12
Matrix: LIQUID

GC/MS Semivolatiles

Fraction: Semivolatiles by 625

LCS: 355WALCS LCSD: 355WALCSD	Batch: 11355WAA625 (Sample number: 6503454)							
Analyte	Spike Added ug/l	LCS Conc ug/l	LCSD Conc ug/l	LCS %Rec	LCSD %Rec	%Rec Limits	%RPD	%RPD Limits
N-Nitrosodimethylamine	50	29.39	30.11	59	60	44-81	2	30
Phenol	50	19.69	21.04	39	42	26-71	7	30
bis(2-Chloroethyl)ether	50	47.29	49.75	95	99	72-114	5	30
2-Chlorophenol	50	44.59	46.14	89	92	78-118	3	30
1,3-Dichlorobenzene	50	40.16	42.29	80	85	67-110	5	30
1,4-Dichlorobenzene	50	40.86	42	82	84	68-111	3	30
1,2-Dichlorobenzene	50	41.47	43.5	83	87	60-111	5	30
bis(2-Chloroisopropyl)ether	50	43.49	46.45	87	93	87-134	7	30
N-Nitroso-di-n-propylamine	50	45.26	48.08	91	96	68-114	6	30
Hexachloroethane	50	43.59	44.73	87	89	44-113	3	30
Nitrobenzene	50	50.58	52.9	101	106	74-121	4	30
Isophorone	50	49.42	53.35	99	107	75-123	8	30
2-Nitrophenol	50	51.01	52.92	102	106	77-120	4	30
2,4-Dimethylphenol	50	47.59	48.56	95	97	70-123	2	30
bis(2-Chloroethoxy)methane	50	51.25	55.5	103	111	69-128	8	30
2,4-Dichlorophenol	50	48.76	50.51	98	101	72-127	4	30
1,2,4-Trichlorobenzene	50	45.64	48.31	91	97	70-119	6	30
Naphthalene	50	47.98	49.61	96	99	73-118	3	30
Hexachlorobutadiene	50	45.46	47.56	91	95	58-116	5	30
4-Chloro-3-methylphenol	50	46.51	48.26	93	97	75-113	4	30
Hexachlorocyclopentadiene	100	67.96	78.73	68	79	38-133	15	30
2,4,6-Trichlorophenol	50	48.66	49.41	97	99	83-120	2	30
2-Chloronaphthalene	50	60.9	58.87	122 *	118 *	57-112	3	30
Dimethylphthalate	50	37.49	38.22	75	76	52-122	2	30
2,6-Dinitrotoluene	50	50.1	52.62	100	105	80-115	5	30
Acenaphthylene	50	52.54	55.18	105	110	75-122	5	30
Acenaphthene	50	49.51	51.17	99	102	75-117	3	30
2,4-Dinitrophenol	100	96.74	101.09	97	101	64-140	4	30
4-Nitrophenol	50	21.68	21.83	43	44	27-80	1	30
2,4-Dinitrotoluene	50	50.51	52.1	101	104	74-121	3	30
Diethylphthalate	50	48.82	50.25	98	100	74-120	3	30
4-Chlorophenyl-phenylether	50	46.93	49.4	94	99	76-115	5	30
Fluorene	50	49.61	51.15	99	102	74-117	3	30
4,6-Dinitro-2-methylphenol	50	52.18	52.74	104	105	65-120	1	30
N-Nitrosodiphenylamine	50	52.06	53.64	104	107	84-135	3	30
1,2-Diphenylhydrazine	50	52.71	53.78	105	108	75-114	2	30
4-Bromophenyl-phenylether	50	50.42	51.66	101	103	80-112	2	30
Hexachlorobenzene	50	47.87	48.92	96	98	75-114	2	30
Pentachlorophenol	50	40.76	41.07	82	82	55-137	1	30
Phenanthrene	50	49.17	49.92	98	100	77-113	2	30
Anthracene	50	50.92	51.77	102	104	75-116	2	30
Di-n-butylphthalate	50	51.57	52.8	103	106	76-120	2	30

GC/MS Semivolatiles

Fraction: Semivolatiles by 625

LCS: 355WALCS LCSD: 355WALCSD Analyte	Batch: **11355WAA625** (Sample number: 6503454) Spike Added ug/l	LCS Conc ug/l	LCSD Conc ug/l	LCS %Rec	LCSD %Rec	%Rec Limits	%RPD	%RPD Limits
Fluoranthene	50	49.87	51.01	100	102	86-119	2	30
Benzidine	250	126.25	147.63	51	59	16-104	16	30
Pyrene	50	53.82	55.24	108	110	76-115	3	30
Butylbenzylphthalate	50	55.1	56.36	110	113	80-125	2	30
bis(2-Ethylhexyl)phthalate	50	54.22	55.54	108	111	74-118	2	30
3,3'-Dichlorobenzidine	50	33.66	39.34	67	79	33-124	16	30
Benzo(a)anthracene	50	48.57	49.11	97	98	76-117	1	30
Chrysene	50	49.01	50.69	98	101	81-118	3	30
Di-n-octylphthalate	50	58.28	60.37	117	121	65-155	4	30
Benzo(b)fluoranthene	50	49.79	50.43	100	101	64-145	1	30
Benzo(k)fluoranthene	50	48.12	52.38	96	105	66-145	8	30
Benzo(a)pyrene	50	50.26	52.42	101	105	69-143	4	30
Indeno(1,2,3-cd)pyrene	50	47.56	49.29	95	99	67-143	4	30
Dibenz(a,h)anthracene	50	48.32	50.03	97	100	68-144	3	30
Benzo(g,h,i)perylene	50	47.7	49.87	95	100	66-145	4	30

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID: ol0600z.d DFTPP Injection Date: 12/13/11

Instrument ID: HP09910 DFTPP Injection Time: 10:30

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	49.3
68	Less than 2.0% of mass 69	0.73 (1.39)1
69	Mass 69 relative abundance	52.3
70	Less than 2.0% of mass 69	0.27 (0.52)1
127	40.0 - 60.0% of mass 198	51.1
197	Less than 1.0% of mass 198	0.22
198	Base peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.73
275	10.0 - 30.0% of mass 198	20.2
365	Greater than 1.00% of mass 198	1.76
441	Present, and less than mass 443	5.33
442	Greater than 40.0 % of mass 198	41.2
443	17.0 - 23.0% of mass 442	8.13 (19.7)2

1-Value is % mass 69 2-Value is % mass of 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	6253471 - SSTD50	ol0601.d	12/13/11	10:47
02	6253471 - SSTD120	ol0602.d	12/13/11	11:12
03	6253471 - SSTD80	ol0603.d	12/13/11	11:38
04	6253471 - SSTD30	ol0604a.d	12/13/11	12:39
05	6253471 - SSTD5	ol0605.d	12/13/11	13:03
06	ICV6252861 - SSTD050	ol0606.d	12/13/11	13:28

DHR12 8152

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID: ol0980.d DFTPP Injection Date: 12/22/11

Instrument ID: HP09910 DFTPP Injection Time: 17:25

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	47.1
68	Less than 2.0% of mass 69	0.87 (1.71)1
69	Mass 69 relative abundance	51.1
70	Less than 2.0% of mass 69	0.25 (0.49)1
127	40.0 - 60.0% of mass 198	54.5
197	Less than 1.0% of mass 198	0.51
198	Base peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.68
275	10.0 - 30.0% of mass 198	20.7
365	Greater than 1.00% of mass 198	2.02
441	Present, and less than mass 443	6.91
442	Greater than 40.0 % of mass 198	46.7
443	17.0 - 23.0% of mass 442	9.15 (19.6)2

1-Value is % mass 69 2-Value is % mass of 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	6253471 - SSTD50	ol0981.d	12/22/11	17:43
02	SBLKWB353	ol0982.d	12/22/11	18:10
03	353WBLCS	ol0983.d	12/22/11	18:36
04	353WBLCSD	ol0984.d	12/22/11	19:02
05	SBLKWC354	ol0985.d	12/22/11	19:27
06	354WCLCS	ol0986.d	12/22/11	19:53
07	354WCLCSD	ol0987.d	12/22/11	20:19
08	SBLKWA355	ol0988.d	12/22/11	20:45
09	355WALCS	ol0989.d	12/22/11	21:11
10	355WALCSD	ol0990.d	12/22/11	21:37
11	6489839RE	ol0991.d	12/22/11	22:03
12	6491241RE	ol0992.d	12/22/11	22:29
13	6500489	ol0993.d	12/22/11	22:55
14	6500490	ol0994.d	12/22/11	23:20
15	6501048	ol0995.d	12/22/11	23:46
16	6501834	ol0996.d	12/23/11	00:12
17	6501950	ol0997.d	12/23/11	00:38
18	6504216	ol0998.d	12/23/11	01:03

BHB12 B153

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID: ol0980.d DFTPP Injection Date: 12/22/11

Instrument ID: HP09910 DFTPP Injection Time: 17:25

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	47.1
68	Less than 2.0% of mass 69	0.87 (1.71)1
69	Mass 69 relative abundance	51.1
70	Less than 2.0% of mass 69	0.25 (0.49)1
127	40.0 - 60.0% of mass 198	54.5
197	Less than 1.0% of mass 198	0.51
198	Base peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.68
275	10.0 - 30.0% of mass 198	20.7
365	Greater than 1.00% of mass 198	2.02
441	Present, and less than mass 443	6.91
442	Greater than 40.0 % of mass 198	46.7
443	17.0 - 23.0% of mass 442	9.15 (19.6)2

1-Value is % mass 69 2-Value is % mass of 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
19	6504217	ol0999.d	12/23/11	01:29
20	6504218	ol1000.d	12/23/11	01:55
21	6504219	ol1001.d	12/23/11	02:21
22	6504220	ol1002.d	12/23/11	02:46
23	6504228	ol1003.d	12/23/11	03:12
24	6501811	ol1004.d	12/23/11	03:38
25	6502652	ol1005.d	12/23/11	04:04
26	6502653	ol1006.d	12/23/11	04:29
27	6502654	ol1007.d	12/23/11	04:55
28	6502655	ol1008.d	12/23/11	05:21
29	6502656	ol1009.d	12/23/11	05:47
30	6502657	ol1010.d	12/23/11	06:12
31	6502658	ol1011.d	12/23/11	06:38
32	6503042	ol1012.d	12/23/11	07:04
33	6503416	ol1013.d	12/23/11	07:29
34	6503417	ol1014.d	12/23/11	07:55
35	6503418	ol1015.d	12/23/11	08:20
36	6503454	ol1016.d	12/23/11	08:46

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID: ol0980.d DFTPP Injection Date: 12/22/11

Instrument ID: HP09910 DFTPP Injection Time: 17:25

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	47.1
68	Less than 2.0% of mass 69	0.87 (1.71)1
69	Mass 69 relative abundance	51.1
70	Less than 2.0% of mass 69	0.25 (0.49)1
127	40.0 - 60.0% of mass 198	54.5
197	Less than 1.0% of mass 198	0.51
198	Base peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.68
275	10.0 - 30.0% of mass 198	20.7
365	Greater than 1.00% of mass 198	2.02
441	Present, and less than mass 443	6.91
442	Greater than 40.0 % of mass 198	46.7
443	17.0 - 23.0% of mass 442	9.15 (19.6)2

1-Value is % mass 69 2-Value is % mass of 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
37	6505434	ol1018.d	12/23/11	09:37
38	6505238	ol1019.d	12/23/11	10:51
39	6505238RE	ol1020.d	12/23/11	11:24

6B

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09910 Calibration Date(s): 12/13/11 12/13/11

Calibration Times: 10:47 13:03

Min $\overline{RRF}$ for SPCC(#) = 0.050 Max %RSD for CCC(*) = 30%

LAB FILE ID: RRF5 = ol0605.d RRF30 = ol0604a.d
RRF50 = ol0601.d RRF80 = ol0603.d RRF120 = ol0602.d

COMPOUND	RRF5	RRF30	RRF50	RRF80	RRF120	$\overline{RRF}$	% RSD	CAL. METHOD
1,4-Dioxane	0.646	0.605	0.643	0.618	0.634	0.629	3	AVG
N-Nitrosodimethylamine	0.973	1.016	1.148	1.151	1.156	1.089	8	AVG
Pyridine	1.765	1.599	1.901	1.847	1.956	1.814	8	AVG
2-Picoline	1.916	1.829	1.947	1.971	1.985	1.930	3	AVG
N-Nitrosodiethylamine	0.816	0.828	0.904	0.921	0.922	0.878	6	AVG
Aniline	2.753	2.784	2.998	3.025	3.072	2.927	5	AVG
Phenol	2.387	2.493	2.657	2.677	2.722	2.587	5	AVG
bis(2-Chloroethyl)ether	1.815	1.775	1.883	1.831	1.875	1.836	2	AVG
n-Decane	1.505	1.878	1.996	1.842	1.929	1.830	10	AVG
2-Chlorophenol	1.482	1.521	1.658	1.652	1.683	1.599	6	AVG
1,3-Dichlorobenzene	1.631	1.537	1.655	1.663	1.662	1.630	3	AVG
1,4-Dichlorobenzene	1.637	1.580	1.716	1.707	1.694	1.667	3	AVG
Benzyl alcohol	0.973	1.141	1.216	1.236	1.271	1.167	10	AVG
1,2-Dichlorobenzene	1.519	1.511	1.616	1.617	1.614	1.575	4	AVG
2-Methylphenol	1.470	1.605	1.721	1.743	1.772	1.662	8	AVG
2,2'-oxybis(1-Chloropropane)	2.685	2.618	2.826	2.778	2.813	2.744	3	AVG
bis(2-Chloroisopropyl)ether	2.685	2.618	2.826	2.778	2.813	2.744	3	AVG
N-Nitrosopyrrolidine	0.984	1.030	1.085	1.119	1.125	1.068	6	AVG
Acetophenone	2.574	2.685	2.994	2.854	2.919	2.805	6	AVG
N-Nitroso-di-n-propylamine	1.492	1.557	1.610	1.607	1.612	1.576	3	AVG
4-Methylphenol	1.867	1.987	2.044	2.070	2.101	2.014	5	AVG
o-Toluidine	2.796	2.831	3.031	3.058	3.092	2.962	5	AVG
Hexachloroethane	0.584	0.565	0.619	0.618	0.618	0.601	4	AVG
Nitrobenzene	0.412	0.430	0.466	0.473	0.476	0.451	6	AVG
Isophorone	0.822	0.853	0.895	0.910	0.924	0.881	5	AVG
2-Nitrophenol	0.173	0.191	0.208	0.213	0.219	0.201	9	AVG
2,4-Dimethylphenol	0.393	0.403	0.424	0.435	0.444	0.420	5	AVG
bis(2-Chloroethoxy)methane	0.476	0.481	0.510	0.527	0.519	0.502	5	AVG
Benzoic acid	0.283	0.350	0.352	0.364	0.387	0.347	11	AVG
2,4-Dichlorophenol	0.280	0.305	0.319	0.325	0.332	0.312	7	AVG
1,2,4-Trichlorobenzene	0.305	0.307	0.326	0.332	0.334	0.321	4	AVG
a-Terpineol	0.287	0.381	0.391	0.372	0.393	0.365	12	AVG
Naphthalene	1.122	1.082	1.157	1.179	1.183	1.145	4	AVG
4-Chloroaniline	0.460	0.463	0.493	0.498	0.505	0.484	4	AVG
2,6-Dichlorophenol	0.289	0.298	0.315	0.320	0.323	0.309	5	AVG
Hexachlorobutadiene	0.141	0.135	0.148	0.148	0.149	0.144	4	AVG
N-Nitrosodi-n-butylamine	0.420	0.444	0.334	0.342	0.341	0.377	14	AVG
4-Chloro-3-methylphenol	0.362	0.387	0.404	0.414	0.419	0.397	6	AVG
2-Methylnaphthalene	0.765	0.771	0.808	0.829	0.832	0.801	4	AVG
1-Methylnaphthalene	0.725	0.739	0.764	0.785	0.787	0.760	4	AVG
Hexachlorocyclopentadiene	0.144	0.186	0.213	0.223	0.222	0.197	17	AVG
1,2,4,5-Tetrachlorobenzene	0.444	0.419	0.445	0.452	0.448	0.442	3	AVG
2,4,6-Trichlorophenol	0.296	0.320	0.341	0.341	0.343	0.328	6	AVG
2,3-Dichloroaniline	0.458	0.594	0.608	0.567	0.590	0.563	11	AVG
2,4,5-Trichlorophenol	0.332	0.357	0.381	0.395	0.390	0.371	7	AVG
Biphenyl	1.479	1.500	1.667	1.589	1.551	1.557	5	AVG
Diphenyl	1.479	1.500	1.667	1.589	1.551	1.557	5	AVG
1,1'-Biphenyl	1.479	1.500	1.667	1.589	1.551	1.557	5	AVG
2-Chloronaphthalene	0.986	1.052	1.011	1.279	1.023	1.070	11	AVG
Diphenyl ether	0.728	0.707	0.749	0.755	0.740	0.736	3	AVG
n-Tetradecane	0.617	0.839	0.880	0.802	0.824	0.792	13	AVG
2-Nitroaniline	0.331	0.386	0.417	0.428	0.426	0.398	10	AVG

LIB/186 12/13/11

DHR12 0156

FORM VI SV-1

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09910 Calibration Date(s): 12/13/11 12/13/11

Calibration Times: 10:47 13:03

Min $\overline{RRF}$ for SPCC(#) = 0.050 Max %RSD for CCC(*) = 30%

LAB FILE ID: RRF5 = ol0605.d RRF30 = ol0604a.d
RRF50 = ol0601.d RRF80 = ol0603.d RRF120 = ol0602.d

COMPOUND	RRF5	RRF30	RRF50	RRF80	RRF120	$\overline{RRF}$	% RSD	CAL. METHOD
Dimethylphthalate	1.284	1.275	1.340	1.350	1.335	1.317	3	AVG
2,6-Dinitrotoluene	0.276	0.296	0.321	0.327	0.321	0.308	7	AVG
Acenaphthylene	1.605	1.656	1.760	1.774	1.756	1.710	4	AVG
3-Nitroaniline	0.337	0.363	0.377	0.383	0.384	0.368	5	AVG
Acenaphthene	1.152	1.110	1.171	1.183	1.157	1.155	2	AVG
2,4-Dinitrophenol	0.124	0.156	0.191	0.206	0.217	0.179	21	AVG
Pentachlorobenzene	0.404	0.384	0.409	0.410	0.398	0.401	3	AVG
4-Nitrophenol	0.167	0.204	0.215	0.218	0.215	0.204	11	AVG
Dibenzofuran	1.634	1.567	1.634	1.657	1.631	1.624	2	AVG
2,4-Dinitrotoluene	0.382	0.397	0.426	0.440	0.438	0.417	6	AVG
2,3,4,6-Tetrachlorophenol	0.269	0.279	0.294	0.304	0.304	0.290	5	AVG
n-Hexadecane	0.691	0.928	0.964	0.901	0.915	0.880	12	AVG
Diethylphthalate	1.283	1.277	1.335	1.352	1.337	1.317	3	AVG
Fluorene	1.409	1.349	1.406	1.394	1.367	1.385	2	AVG
4-Chlorophenyl-phenylether	0.635	0.593	0.619	0.609	0.595	0.610	3	AVG
4-Nitroaniline	0.386	0.395	0.407	0.417	0.410	0.403	3	AVG
4,6-Dinitro-2-methylphenol	0.081	0.127	0.140	0.150	0.157	0.131	23	AVG
N-Nitrosodiphenylamine (1)	0.627	0.639	0.665	0.666	0.677	0.655	3	AVG
1,2-Diphenylhydrazine	0.839	0.860	0.912	0.923	0.935	0.894	5	AVG
4-Bromophenyl-phenylether	0.179	0.179	0.187	0.190	0.190	0.185	3	AVG
Hexachlorobenzene	0.172	0.170	0.172	0.180	0.180	0.175	3	AVG
n-Octadecane	0.455	0.594	0.620	0.586	0.618	0.575	12	AVG
Pentachlorophenol	0.118	0.157	0.126	0.129	0.134	0.133	11	AVG
Phenanthrene	1.154	1.132	1.154	1.171	1.180	1.158	2	AVG
Anthracene	1.133	1.150	1.185	1.198	1.214	1.176	3	AVG
Carbazole	1.128	1.122	1.152	1.150	1.169	1.144	2	AVG
Di-n-butylphthalate	1.192	1.296	1.371	1.389	1.419	1.333	7	AVG
1-Methylphenanthrene	0.692	0.859	0.847	0.809	0.854	0.812	9	AVG
n-Docosane	0.426	0.629	0.688	0.657	0.709	0.622	18	AVG
Fluoranthene	1.171	1.174	1.207	1.214	1.225	1.198	2	AVG
Benzidine	0.786	0.911	1.007	0.979	1.003	0.937	10	AVG
n-Eicosane	0.423	0.618	0.640	0.603	0.645	0.586	16	AVG
Pyrene	1.358	1.346	1.415	1.450	1.478	1.409	4	AVG
Butylbenzylphthalate	0.583	0.624	0.677	0.679	0.693	0.651	7	AVG
3,3'-Dichlorobenzidine	0.366	0.410	0.451	0.447	0.449	0.424	9	AVG
Benzo(a)anthracene	1.210	1.158	1.235	1.223	1.255	1.216	3	AVG
Chrysene	1.232	1.168	1.215	1.228	1.221	1.213	2	AVG
bis(2-Ethylhexyl)phthalate	0.821	0.855	0.944	0.940	0.961	0.904	7	AVG
Di-n-octylphthalate	1.175	1.474	1.643	1.689	1.742	1.544	15	AVG
Benzo(b)fluoranthene	1.168	1.182	1.267	1.303	1.337	1.251	6	AVG
Benzo(k)fluoranthene	1.259	1.278	1.273	1.303	1.291	1.281	1	AVG
Benzo(a)pyrene	0.944	1.085	1.142	1.152	1.162	1.097	8	AVG
Indeno(1,2,3-cd)pyrene	1.086	1.154	1.219	1.231	1.250	1.188	6	AVG
Dibenz(a,h)anthracene	0.905	0.979	1.013	1.009	1.052	0.992	6	AVG
Benzo(g,h,i)perylene	0.892	0.966	1.026	1.040	1.055	0.996	7	AVG
2-Fluorophenol	1.302	1.378	1.500	1.524	1.541	1.449	7	AVG
Phenol-d5	2.062	2.186	2.337	2.344	2.390	2.264	6	AVG
Phenol-d6	2.062	2.186	2.337	2.344	2.390	2.264	6	AVG
Nitrobenzene-d5	0.422	0.425	0.454	0.467	0.471	0.448	5	AVG
2-Fluorobiphenyl	1.157	1.136	1.213	1.206	1.191	1.180	3	AVG
2,4,6-Tribromophenol	0.112	0.120	0.128	0.131	0.130	0.124	6	AVG
Terphenyl-d14	0.859	0.843	0.903	0.918	0.937	0.892	4	AVG

Average %RSD 6

4,6-Dinitro-2-methylphenol and 4-Nitrophenol are at 10 ng/ul in the 5 standard.
Benzidine Levels in the 5,30,50,80,120 standards are 15,90,150,240,360 ng/ul, respectively.
Benzoic acid, Pentachlorophenol and 2,4-Dinitrophenol are at 15 ng/ul,40 ng/ul in the 5,30 standards.

BHR12 0157

Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem/HP09910.i/11dec13a.b/ol0601.d SSTD050
/chem/HP09910.i/11dec13a.b/ol0602.d SSTD120
/chem/HP09910.i/11dec13a.b/ol0603.d SSTD080
/chem/HP09910.i/11dec13a.b/ol0604a.d SSTD030
/chem/HP09910.i/11dec13a.b/ol0605.d SSTD005

Area Summary

Internal Standard Name	ol0601.d	ol0602.d	ol0603.d	ol0604a.d	ol0605.d	Avg. Area	%RSD	In Spec
	File ID:							
1,4-Dichlorobenzene-d4	108823	105320	105993	104050	99330	104703	3	Yes
2-Fluoronaphthalene	499075	483883	480878	477754	453238	478966	3	Yes
Acenaphthene-d10	346152	349131	340799	340995	316933	338802	4	Yes
Phenanthrene-d10	624362	617861	616506	615192	589086	612601	2	Yes
Chrysene-d12	569098	544244	553337	587905	576561	566229	3	Yes
Perylene-d12	535423	505739	510077	538818	541350	526281	3	Yes

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

Internal Standard Name	ol0601.d	ol0602.d	ol0603.d	ol0604a.d	ol0605.d	Avg. RT
	File ID:					
1,4-Dichlorobenzene-d4	6.057	6.057	6.057	6.057	6.057	6.057
2-Fluoronaphthalene	7.316	7.322	7.316	7.316	7.316	7.317
Acenaphthene-d10	9.045	9.051	9.045	9.045	9.039	9.045
Phenanthrene-d10	10.510	10.516	10.510	10.510	10.504	10.510
Chrysene-d12	13.145	13.151	13.145	13.139	13.133	13.143
Perylene-d12	14.598	14.604	14.604	14.598	14.598	14.600

Comments: MB 1946 12/13/11

Report generated on 12/13/2011 at 14:09

DHR12 0158

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS LAB CODE: LANCAS INSTRUMENT: HP09910

Method: EPA 625 File ID: ol0606.d

ICV SAMPLE ID: ICV6252861 BATCH: 11DEC13A625 Sample Name: SSTD050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
1,4-Dioxane	50.00	43.49	-13	30	YES
N-Nitrosodimethylamine	50.00	45.83	-8	30	YES
Pyridine	50.00	45.96	-8	30	YES
2-Picoline	50.00	45.13	-10	30	YES
2-Fluorophenol	50.00	44.51	-11	30	YES
N-Nitrosodiethylamine	50.00	54.14	8	30	YES
Phenol-d5	50.00	44.55	-11	30	YES
Phenol-d6	50.00	44.55	-11	30	YES
Phenol	50.00	47.29	-5	30	YES
Aniline	50.00	46.34	-7	30	YES
bis(2-Chloroethyl)ether	50.00	44.38	-11	30	YES
2-Chlorophenol	50.00	46.67	-7	30	YES
n-Decane	50.00	49.00	-2	30	YES
1,3-Dichlorobenzene	50.00	47.15	-6	30	YES
1,4-Dichlorobenzene	50.00	47.00	-6	30	YES
Benzyl alcohol	50.00	48.83	-2	30	YES
1,2-Dichlorobenzene	50.00	47.40	-5	30	YES
2-Methylphenol	50.00	47.91	-4	30	YES
2,2'-oxybis(1-Chloropropane	50.00	44.61	-11	30	YES
bis(2-Chloroisopropyl)ether	50.00	44.61	-11	30	YES
N-Nitrosopyrrolidine	50.00	54.49	9	30	YES
Acetophenone	50.00	41.58	-17	30	YES
4-Methylphenol	50.00	47.77	-4	30	YES
N-Nitroso-di-n-propylamine	50.00	46.95	-6	30	YES
o-Toluidine	50.00	46.32	-7	30	YES
Hexachloroethane	50.00	46.07	-8	30	YES
Nitrobenzene-d5	50.00	45.02	-10	30	YES
Nitrobenzene	50.00	46.65	-7	30	YES
Isophorone	50.00	46.77	-6	30	YES
2-Nitrophenol	50.00	47.59	-5	30	YES
2,4-Dimethylphenol	50.00	47.31	-5	30	YES
Benzoic acid	50.00	42.46	-15	30	YES
bis(2-Chloroethoxy)methane	50.00	46.84	-6	30	YES
2,4-Dichlorophenol	50.00	48.30	-3	30	YES
1,2,4-Trichlorobenzene	50.00	48.36	-3	30	YES
Naphthalene	50.00	46.65	-7	30	YES
a-Terpineol	50.00	48.63	-3	30	YES

NC = Could not calculate

Comments: _____

12/18/13
12/13/11

DHR12 0159

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS LAB CODE: LANCAS INSTRUMENT: HP09910

Method: EPA 625 File ID: ol0606.d

ICV SAMPLE ID: ICV6252861 BATCH: 11DEC13A625 Sample Name: SSTD050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
4-Chloroaniline	50.00	49.19	-2	30	YES
2,6-Dichlorophenol	50.00	56.25	13	30	YES
Hexachlorobutadiene	50.00	47.27	-5	30	YES
N-Nitrosodi-n-butylamine	50.00	48.67	-3	30	YES
4-Chloro-3-methylphenol	50.00	48.48	-3	30	YES
2-Methylnaphthalene	50.00	47.25	-6	30	YES
1-Methylnaphthalene	50.00	46.91	-6	30	YES
Hexachlorocyclopentadiene	100.00	102.62	3	30	YES
1,2,4,5-Tetrachlorobenzene	50.00	46.53	-7	30	YES
2,4,6-Trichlorophenol	50.00	46.63	-7	30	YES
2,3-Dichloroaniline	50.00	48.73	-3	30	YES
2,4,5-Trichlorophenol	50.00	47.41	-5	30	YES
2-Fluorobiphenyl	50.00	44.47	-11	30	YES
Biphenyl	50.00	41.93	-16	30	YES
Diphenyl	50.00	41.93	-16	30	YES
1,1'-Biphenyl	50.00	41.93	-16	30	YES
n-Tetradecane	50.00	48.95	-2	30	YES
2-Chloronaphthalene	50.00	41.79	-16	30	YES
Diphenyl ether	50.00	44.23	-12	30	YES
2-Nitroaniline	50.00	47.33	-5	30	YES
Dimethylphthalate	50.00	44.68	-11	30	YES
2,6-Dinitrotoluene	50.00	45.62	-9	30	YES
Acenaphthylene	50.00	46.99	-6	30	YES
3-Nitroaniline	50.00	46.37	-7	30	YES
Acenaphthene	50.00	45.04	-10	30	YES
2,4-Dinitrophenol	50.00	46.41	-7	30	YES
4-Nitrophenol	50.00	48.67	-3	30	YES
Pentachlorobenzene	50.00	54.03	8	30	YES
2,4-Dinitrotoluene	50.00	45.19	-10	30	YES
Dibenzofuran	50.00	45.82	-8	30	YES
2,3,4,6-Tetrachlorophenol	50.00	42.93	-14	30	YES
Diethylphthalate	50.00	44.62	-11	30	YES
n-Hexadecane	50.00	48.63	-3	30	YES
Fluorene	50.00	45.30	-9	30	YES
4-Chlorophenyl-phenylether	50.00	44.69	-11	30	YES
4-Nitroaniline	50.00	45.73	-9	30	YES
4,6-Dinitro-2-methylphenol	50.00	48.95	-2	30	YES

NC = Could not calculate

Comments: _____

DHR12 0168

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS LAB CODE: LANCAS INSTRUMENT: HP09910

Method: EPA 625 File ID: ol0606.d

ICV SAMPLE ID: ICV6252861 BATCH: 11DEC13A625 Sample Name: SSTD050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
N-Nitrosodiphenylamine	50.00	47.14	-6	30	YES
1,2-Diphenylhydrazine	50.00	46.64	-7	30	YES
2,4,6-Tribromophenol	50.00	43.76	-12	30	YES
4-Bromophenyl-phenylether	50.00	45.34	-9	30	YES
Hexachlorobenzene	50.00	45.00	-10	30	YES
Pentachlorophenol	50.00	44.83	-10	30	YES
n-Octadecane	50.00	47.85	-4	30	YES
Phenanthrene	50.00	43.87	-12	30	YES
Anthracene	50.00	44.85	-10	30	YES
Carbazole	50.00	46.35	-7	30	YES
Di-n-butylphthalate	50.00	44.94	-10	30	YES
1-Methylphenanthrene	50.00	46.80	-6	30	YES
n-Docosane	50.00	49.46	-1	30	YES
Fluoranthene	50.00	46.01	-8	30	YES
Benzidine	250.00	213.99	-14	30	YES
Pyrene	50.00	45.06	-10	30	YES
n-Eicosane	50.00	47.92	-4	30	YES
Terphenyl-d14	50.00	44.22	-12	30	YES
Butylbenzylphthalate	50.00	45.82	-8	30	YES
3,3'-Dichlorobenzidine	50.00	44.32	-11	30	YES
Benzo(a)anthracene	50.00	44.49	-11	30	YES
Chrysene	50.00	43.98	-12	30	YES
bis(2-Ethylhexyl)phthalate	50.00	44.87	-10	30	YES
Di-n-octylphthalate	50.00	50.34	1	30	YES
Benzo(b)fluoranthene	50.00	49.03	-2	30	YES
Benzo(k)fluoranthene	50.00	48.07	-4	30	YES
Benzo(a)pyrene	50.00	49.21	-2	30	YES
Indeno(1,2,3-cd)pyrene	50.00	48.76	-2	30	YES
Dibenz(a,h)anthracene	50.00	49.29	-1	30	YES
Benzo(g,h,i)perylene	50.00	48.32	-3	30	YES

NC = Could not calculate

Comments: _____

DMR12: 8161

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09910 Calibration Date: 12/22/11 Time: 17:43

Lab File ID: ol0981.d Init. Calib. Date(s): 12/13/11 12/13/11

Init. Calib. Times(s): 10:47 13:03

COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT
1,4-Dioxane	0.629	0.640	50.830	50.0	2
N-Nitrosodimethylamine	1.089	1.119	51.380	50.0	3
Pyridine	1.814	1.845	50.850	50.0	2
2-Picoline	1.930	1.980	51.310	50.0	3
N-Nitrosodiethylamine	0.878	0.910	51.840	50.0	4
Aniline	2.927	2.990	51.080	50.0	2
Phenol	2.587	2.723	52.620	50.0	5
bis(2-Chloroethyl)ether	1.836	1.924	52.420	50.0	5
n-Decane	1.830	1.943	53.090	50.0	6
2-Chlorophenol	1.599	1.662	51.980	50.0	4
1,3-Dichlorobenzene	1.630	1.636	50.190	50.0	0
1,4-Dichlorobenzene	1.667	1.687	50.610	50.0	1
Benzyl alcohol	1.167	1.199	51.350	50.0	3
1,2-Dichlorobenzene	1.575	1.590	50.480	50.0	1
2-Methylphenol	1.662	1.722	51.810	50.0	4
2,2'-oxybis(1-Chloropropane)	2.744	2.654	48.360	50.0	-3
bis(2-Chloroisopropyl)ether	2.744	2.654	48.360	50.0	-3
N-Nitrosopyrrolidine	1.068	1.102	51.570	50.0	3
Acetophenone	2.805	3.034	54.080	50.0	8
N-Nitroso-di-n-propylamine	1.576	1.614	51.220	50.0	2
4-Methylphenol	2.014	2.048	50.850	50.0	2
o-Toluidine	2.962	3.021	50.990	50.0	2
Hexachloroethane	0.601	0.650	54.070	50.0	8
Nitrobenzene	0.451	0.478	53.010	50.0	6
Isophorone	0.881	0.927	52.610	50.0	5
2-Nitrophenol	0.201	0.216	53.700	50.0	7
2,4-Dimethylphenol	0.420	0.433	51.600	50.0	3
bis(2-Chloroethoxy)methane	0.502	0.540	53.780	50.0	8
Benzoic acid	0.347	0.348	50.110	50.0	0
2,4-Dichlorophenol	0.312	0.323	51.810	50.0	4
1,2,4-Trichlorobenzene	0.321	0.324	50.470	50.0	1
a-Terpineol	0.365	0.400	54.910	50.0	10
Naphthalene	1.145	1.180	51.560	50.0	3
4-Chloroaniline	0.484	0.508	52.500	50.0	5
2,6-Dichlorophenol	0.309	0.315	50.930	50.0	2
Hexachlorobutadiene	0.144	0.143	49.640	50.0	-1

MB1886 12/22/11

DMR12 #162

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09910 Calibration Date: 12/22/11 Time: 17:43

Lab File ID: ol0981.d Init. Calib. Date(s): 12/13/11 12/13/11

Init. Calib. Times(s): 10:47 13:03

COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT
N-Nitrosodi-n-butylamine	0.377	0.347	46.110	50.0	-8
4-Chloro-3-methylphenol	0.397	0.410	51.640	50.0	3
2-Methylnaphthalene	0.801	0.824	51.480	50.0	3
1-Methylnaphthalene	0.760	0.777	51.100	50.0	2
Hexachlorocyclopentadiene	0.197	0.198	50.280	50.0	1
1,2,4,5-Tetrachlorobenzene	0.442	0.456	51.590	50.0	3
2,4,6-Trichlorophenol	0.328	0.329	50.130	50.0	0
2,3-Dichloroaniline	0.563	0.616	54.620	50.0	9
2,4,5-Trichlorophenol	0.371	0.377	50.760	50.0	2
Biphenyl	1.557	1.720	55.240	50.0	10
Diphenyl	1.557	1.720	55.240	50.0	10
1,1'-Biphenyl	1.557	1.720	55.240	50.0	10
2-Chloronaphthalene	1.070	1.251	58.440	50.0	17
Diphenyl ether	0.736	0.761	51.700	50.0	3
n-Tetradecane	0.792	0.913	57.600	50.0	15
2-Nitroaniline	0.398	0.421	52.920	50.0	6
Dimethylphthalate	1.317	1.327	50.400	50.0	1
2,6-Dinitrotoluene	0.308	0.321	52.010	50.0	4
Acenaphthylene	1.710	1.766	51.640	50.0	3
3-Nitroaniline	0.368	0.380	51.490	50.0	3
Acenaphthene	1.155	1.187	51.410	50.0	3
2,4-Dinitrophenol	0.179	0.178	49.610	50.0	-1
Pentachlorobenzene	0.401	0.401	49.980	50.0	0
4-Nitrophenol	0.204	0.220	53.980	50.0	8
Dibenzofuran	1.624	1.635	50.320	50.0	1
2,4-Dinitrotoluene	0.417	0.432	51.880	50.0	4
2,3,4,6-Tetrachlorophenol	0.290	0.281	48.540	50.0	-3
n-Hexadecane	0.880	0.995	56.560	50.0	13
Diethylphthalate	1.317	1.361	51.670	50.0	3
Fluorene	1.385	1.398	50.480	50.0	1
4-Chlorophenyl-phenylether	0.610	0.594	48.700	50.0	-3
4-Nitroaniline	0.403	0.403	50.020	50.0	0
4,6-Dinitro-2-methylphenol	0.131	0.145	55.180	50.0	10
N-Nitrosodiphenylamine (1)	0.655	0.706	53.890	50.0	8
1,2-Diphenylhydrazine	0.894	0.984	55.040	50.0	10
4-Bromophenyl-phenylether	0.185	0.191	51.530	50.0	3

DHN12 8463

(1) Cannot be Separated from Diphenylamine

7C cont

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09910 Calibration Date: 12/22/11 Time: 17:43

Lab File ID: ol0981.d Init. Calib. Date(s): 12/13/11 12/13/11

Init. Calib. Times(s): 10:47 13:03

COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT
Hexachlorobenzene	0.175	0.170	48.650	50.0	-3
n-Octadecane	0.575	0.663	57.730	50.0	15
Pentachlorophenol	0.133	0.117	44.210	50.0	-12
Phenanthrene	1.158	1.195	51.620	50.0	3
Anthracene	1.176	1.234	52.460	50.0	5
Carbazole	1.144	1.181	51.600	50.0	3
Di-n-butylphthalate	1.333	1.424	53.400	50.0	7
1-Methylphenanthrene	0.812	0.878	54.030	50.0	8
n-Docosane	0.622	0.742	59.670	50.0	19
Fluoranthene	1.198	1.237	51.630	50.0	3
Benzidine	0.937	0.955	152.860	150.0	2
n-Eicosane	0.586	0.681	58.110	50.0	16
Pyrene	1.409	1.470	52.160	50.0	4
Butylbenzylphthalate	0.651	0.715	54.920	50.0	10
3,3'-Dichlorobenzidine	0.424	0.425	50.030	50.0	0
Benzo(a)anthracene	1.216	1.184	48.680	50.0	-3
Chrysene	1.213	1.241	51.160	50.0	2
bis(2-Ethylhexyl)phthalate	0.904	0.980	54.190	50.0	8
Di-n-octylphthalate	1.544	1.712	55.410	50.0	11
Benzo(b)fluoranthene	1.251	1.277	51.020	50.0	2
Benzo(k)fluoranthene	1.281	1.244	48.570	50.0	-3
Benzo(a)pyrene	1.097	1.112	50.690	50.0	1
Indeno(1,2,3-cd)pyrene	1.188	1.162	48.900	50.0	-2
Dibenz(a,h)anthracene	0.992	0.974	49.120	50.0	-2
Benzo(g,h,i)perylene	0.996	0.985	49.480	50.0	-1
2-Fluorophenol	1.449	1.505	51.950	50.0	4
Phenol-d5	2.264	2.326	51.370	50.0	3
Phenol-d6	2.264	2.326	51.370	50.0	3
Nitrobenzene-d5	0.448	0.466	52.000	50.0	4
2-Fluorobiphenyl	1.180	1.225	51.900	50.0	4
2,4,6-Tribromophenol	0.124	0.118	47.280	50.0	-5
Terphenyl-d14	0.892	0.903	50.600	50.0	1
			Average %Drift:		5

DHR12 8164

FORM VII SV-1

Continuing Calibration
Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem/HP09910.i/11dec13a.b/ol0601.d **
/chem/HP09910.i/11dec13a.b/ol0602.d
/chem/HP09910.i/11dec13a.b/ol0603.d
/chem/HP09910.i/11dec13a.b/ol0604a.d
/chem/HP09910.i/11dec13a.b/ol0605.d

** indicates the Mid Level Calibration Standard.

Mid Level Calibration Standard is used for comparison.

Current Continuing Calibration Standard:

/chem/HP09910.i/11dec22b.b/ol0981.d

Area Summary

File ID:

Internal Standard Name	ol0981.d	ICAL Area	Low Limit	High Limit	In Spec
1,4-Dichlorobenzene-d4	129983	108823	54412	217646	Yes
2-Fluoronaphthalene	576558	499075	249538	998150	Yes
Acenaphthene-d10	394604	346152	173076	692304	Yes
Phenanthrene-d10	676478	624362	312181	1248724	Yes
Chrysene-d12	607388	569098	284549	1138196	Yes
Perylene-d12	564189	535423	267712	1070846	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

RT Summary

File ID:

Internal Standard Name	ol0981.d	ICAL RT	In Spec
1,4-Dichlorobenzene-d4	5.751	6.057	Yes
2-Fluoronaphthalene	7.016	7.316	Yes
Acenaphthene-d10	8.733	9.045	Yes
Phenanthrene-d10	10.192	10.510	Yes
Chrysene-d12	12.798	13.145	Yes
Perylene-d12	14.221	14.598	Yes

A "No" indicates the retention time is greater than 30 seconds from the RT of the referenced standard.

Comments: 1/18/12

12/22/11

DHR12 8165

Report generated on 12/22/2011 at 18:05

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: LANCASTER LABS Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID (Standard): ol0981.d Date Analyzed: 12/22/11

Instrument ID: HP09910 Time Analyzed: 17:43

		IS1(DCB)			IS2(2fn)			IS3(ANT)		
		AREA	#	RT	#	AREA	#	RT	#	AREA	#	RT	#
	24 HOUR STD	129983		5.751		576558		7.016		394604		8.733	
	UPPER LIMIT	259966		6.251		1153116		7.516		789208		9.233	
	LOWER LIMIT	64992		5.251		288279		6.516		197302		8.233	
	LLI SAMPLE NO.												
01	SBLKWB353	119063		5.751		484227		7.010		330722		8.727	
02	353WBLCS	124860		5.751		544233		7.016		367482		8.733	
03	353WBLCSD	122155		5.751		516123		7.016		353077		8.733	
04	SBLKWC354	114990		5.751		459762		7.010		315942		8.728	
05	354WCLCS	117829		5.751		499780		7.010		345260		8.733	
06	354WCLCSD	118379		5.751		509860		7.016		350781		8.734	
07	SBLKWA355	110804		5.751		457786		7.010		319235		8.728	
08	355WALCS	115223		5.751		488048		7.010		333360		8.733	
09	355WALCSD	120704		5.751		515268		7.016		358592		8.733	
10	6489839RE	110696		5.751		454663		7.010		320412		8.727	
11	6491241RE	102530		5.751		431998		7.010		301864		8.728	
12	6500489	113665		5.751		470916		7.010		326732		8.728	
13	6500490	110684		5.751		456916		7.010		326902		8.728	
14	6501048	124588		5.751		539797		7.010		377838		8.728	
15	6501834	119131		5.751		552855		7.010		338752		8.733	
16	6501950	109719		5.751		461860		7.010		336614		8.728	
17	6504216	104896		5.751		439679		7.010		298048		8.728	

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (2fn) = 2-Fluoronaphthalene
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT (advisory) = +100% of internal standard area
AREA LOWER LIMIT (advisory) = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard are and RT values with an asterisk
* Values outside of QC limits.

BHR12 8166

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: LANCASTER LABS Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID (Standard): ol0981.d Date Analyzed: 12/22/11

Instrument ID: HP09910 Time Analyzed: 17:43

	IS4(PHN)		IS5(CRY)		IS6(PRY)	
	AREA #	RT #	AREA #	RT #	AREA #	RT #
24 HOUR STD	676478	10.192	607388	12.798	564189	14.221
UPPER LIMIT	1352956	10.692	1214776	13.298	1128378	14.721
LOWER LIMIT	338239	9.692	303694	12.298	282095	13.721
LLI SAMPLE NO.						
01 SBLKWB353	588963	10.186	538359	12.786	475484	14.215
02 353WBLCS	629330	10.192	509736	12.798	444862	14.215
03 353WBLCSD	600912	10.192	496797	12.792	427612	14.215
04 SBLKWC354	564325	10.186	493137	12.786	439988	14.215
05 354WCLCS	589844	10.186	482048	12.792	411455	14.215
06 354WCLCSD	606891	10.186	491662	12.798	424512	14.216
07 SBLKWA355	571848	10.186	522179	12.786	461661	14.215
08 355WALCS	558344	10.186	458287	12.792	398307	14.215
09 355WALCSD	612606	10.192	502132	12.798	425127	14.215
10 6489839RE	573232	10.186	533691	12.786	482859	14.215
11 6491241RE	540415	10.186	503285	12.786	460893	14.215
12 6500489	578602	10.186	530647	12.786	478373	14.215
13 6500490	565433	10.186	507785	12.786	456542	14.216
14 6501048	633125	10.186	547202	12.792	484761	14.215
15 6501834	573224	10.192	503660	12.792	453897	14.221
16 6501950	616639	10.186	561777	12.786	502412	14.216
17 6504216	500219	10.186	420452	12.792	369290	14.221

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT (advisory) = +100% of internal standard area
AREA LOWER LIMIT (advisory) = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard are and RT values with an asterisk
* Values outside of QC limits.

9HR12 8167

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: LANCASTER LABS Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID (Standard): ol0981.d Date Analyzed: 12/22/11

Instrument ID: HP09910 Time Analyzed: 17:43

		IS1(DCB)			IS2(2fn)			IS3(ANT)		
		AREA	#	RT	#	AREA	#	RT	#	AREA	#	RT	#
	24 HOUR STD	129983		5.751		576558		7.016		394604		8.733	
	UPPER LIMIT	259966		6.251		1153116		7.516		789208		9.233	
	LOWER LIMIT	64992		5.251		288279		6.516		197302		8.233	
	LLI SAMPLE NO.												
18	6504217	104565		5.751		439335		7.010		308390		8.734	
19	6504218	102332		5.751		431996		7.010		299648		8.734	
20	6504219	102194		5.757		427740		7.016		292429		8.733	
21	6504220	105679		5.757		443016		7.016		303295		8.739	
22	6504228	116221		5.757		482686		7.016		315544		8.739	
23	6501811	122549		5.763		541406		7.022		370497		8.739	
24	6502652	112675		5.757		473027		7.022		328021		8.739	
25	6502653	119190		5.763		508228		7.022		348451		8.745	
26	6502654	114015		5.763		482701		7.022		348225		8.745	
27	6502655	113667		5.763		471240		7.022		336816		8.745	
28	6502656	111392		5.763		474413		7.022		335981		8.745	
29	6502657	132080		5.763		555275		7.022		391849		8.739	
30	6502658	134304		5.757		555191		7.022		386903		8.739	
31	6503042	135863		5.757		573890		7.022		402149		8.739	
32	6503416	128138		5.757		525128		7.016		367357		8.739	
33	6503417	134530		5.757		560568		7.016		383005		8.739	
34	6503418	133146		5.757		543870		7.016		378247		8.739	

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (2fn) = 2-Fluoronaphthalene
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT (advisory) = +100% of internal standard area
AREA LOWER LIMIT (advisory) = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard are and RT values with an asterisk
* Values outside of QC limits.

DHR12 0168

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: LANCASTER LABS Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID (Standard): ol0981.d Date Analyzed: 12/22/11

Instrument ID: HP09910 Time Analyzed: 17:43

		IS4(PHN)		IS5(CRY)		IS6(PRY)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	24 HOUR STD	676478	10.192	607388	12.798	564189	14.221
	UPPER LIMIT	1352956	10.692	1214776	13.298	1128378	14.721
	LOWER LIMIT	338239	9.692	303694	12.298	282095	13.721
	LLI SAMPLE NO.						
18	6504217	523467	10.186	443312	12.792	387221	14.222
19	6504218	499374	10.186	421479	12.798	367398	14.221
20	6504219	488215	10.192	404575	12.804	357396	14.227
21	6504220	498532	10.192	401230	12.804	353869	14.233
22	6504228	511499	10.198	411524	12.810	367649	14.233
23	6501811	618052	10.198	500788	12.804	450839	14.233
24	6502652	547506	10.198	463282	12.804	408686	14.233
25	6502653	575782	10.198	482144	12.810	425956	14.239
26	6502654	598815	10.204	481874	12.810	416269	14.239
27	6502655	601848	10.198	507781	12.810	441568	14.239
28	6502656	579963	10.198	481116	12.804	420415	14.233
29	6502657	669154	10.198	549620	12.804	492245	14.233
30	6502658	648533	10.198	546505	12.804	469922	14.233
31	6503042	662742	10.198	543701	12.804	471871	14.233
32	6503416	635980	10.198	543731	12.804	475450	14.233
33	6503417	649609	10.198	541209	12.804	472994	14.233
34	6503418	646868	10.198	542127	12.804	469816	14.233

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT (advisory) = +100% of internal standard area
AREA LOWER LIMIT (advisory) = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard are and RT values with an asterisk
* Values outside of QC limits.

DHR12 8169

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: LANCASTER LABS Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID (Standard): ol0981.d Date Analyzed: 12/22/11

Instrument ID: HP09910 Time Analyzed: 17:43

		IS1(DCB)			IS2(2fn)			IS3(ANT)	
		AREA	#	RT	#	AREA	#	RT	#	AREA	#	RT	#
	24 HOUR STD	129983		5.751		576558		7.016		394604		8.733	
	UPPER LIMIT	259966		6.251		1153116		7.516		789208		9.233	
	LOWER LIMIT	64992		5.251		288279		6.516		197302		8.233	
	LLI SAMPLE NO.												
35	6503454	133620		5.757		553738		7.016		381108		8.739	
36	6505434	130422		5.763		557312		7.022		388461		8.745	
37	6505238	65199		5.763		53081	*	7.022		207572		8.745	
38	6505238RE	69073		5.763		55277	*	7.022		213776		8.745	

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (2fn) = 2-Fluoronaphthalene
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT (advisory) = +100% of internal standard area
AREA LOWER LIMIT (advisory) = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard are and RT values with an asterisk
* Values outside of QC limits.

DHR12 8178

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: LANCASTER LABS Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID (Standard): ol0981.d Date Analyzed: 12/22/11

Instrument ID: HP09910 Time Analyzed: 17:43

		IS4(PHN)			IS5(CRY)			IS6(PRY)		
		AREA	#	RT	#	AREA	#	RT	#	AREA	#	RT	#
	24 HOUR STD	676478		10.192		607388		12.798		564189		14.221	
	UPPER LIMIT	1352956		10.692		1214776		13.298		1128378		14.721	
	LOWER LIMIT	338239		9.692		303694		12.298		282095		13.721	
	LLI SAMPLE NO.												
35	6503454	635891		10.198		531678		12.804		467534		14.233	
36	6505434	622388		10.204		480500		12.810		425005		14.239	
37	6505238	345179		10.204		52730	*	12.810		237066	*	14.239	
38	6505238RE	363929		10.204		52257	*	12.810		244693	*	14.239	

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT (advisory) = +100% of internal standard area
AREA LOWER LIMIT (advisory) = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard are and RT values with an asterisk
* Values outside of QC limits.

DHR12 8171

Lancaster Laboratories

Semi-Volatiles

Runlog for Hewlett Packard GC/MS System HP09910 **HP #15**

*** Shift #1 Analyst:_____ *** Shift #2 Analyst:___hb_____*

Comment Code:

R	=	Reinjection necessary	X	=	Sample sent to be reextracted
S	=	Surrogate problem	I	=	Internal Standard problem
NU	=	Not used	F	=	Further dilution required
MR	=	Meets requirements	IUO	=	Internal use only
Cz	=	Confirms z, (z = I or X)	T	=	Injected outside valid tune period

Other problems or comments are as follows:

_____

_____

_____

_____

Data Directory Path is - C:\MSDCHEM\1\DATA\11dec13a\

ALS Btl #	Laboratory File ID	Client ID	Lab Sample ID	Date injected	Time injected	Case and SDG Number or Extraction Batch Number	Dilution Factor	Comments
1	o10600.D	DFTPP	DFTPP3131	13 Dec 2011	10:19			nu
1	o10600z.D	DFTPP	DFTPP3131	13 Dec 2011	10:30			mr
2	o10601.D	SSTD050	6253471	13 Dec 2011	10:47			mr
3	o10602.D	SSTD120	6253471	13 Dec 2011	11:12			mr
4	o10603.D	SSTD080	6253471	13 Dec 2011	11:38			mr
5	o10604.D	SSTD030	6253471	13 Dec 2011	12:13			nu
5	o10604a.D	SSTD030	6253471	13 Dec 2011	12:39			mr
6	o10605.D	SSTD005	6253471	13 Dec 2011	13:03			mr
7	o10606.D	SSTD050	ICV6252861	13 Dec 2011	13:28			mr

Lancaster Laboratories
Semi-Volatiles

Runlog for Hewlett Packard GC/MS System HP09910 **HP #15**

*** Shift #1 Analyst: _____ *** Shift #2 Analyst: _____ *

Comment Code:

R = Reinjection necessary		X =	Sample sent to be reextracted
S = Surrogate problem		I =	Internal Standard problem
NU = Not used		F =	Further dilution required
MR = Meets requirements		IUO =	Internal use only
Cz = Confirms z, (z = I or X)		T =	Injected outside valid tune period

Other problems or comments are as follows:

*

*

*

*

Data Directory Path is - C:\MSDCHEM\1\DATA\11dec22b\

ALS Btl #	Laboratory File ID	Client ID	Lab Sample ID	Date injected	Time injected	Case and SDG Number or Extraction Batch Number	Dilution Factor	Comments
1	o10980.D	DFTPP	DFTPP3471	22 Dec 2011	17:25			mr
2	o10981.D	SSTD050	6253471	22 Dec 2011	17:43			mr
3	o10982.D	SBLKWB353O	SBLKWB353	22 Dec 2011	18:10	11353WAB		mr
4	o10983.D	353WBLCSO	353WBLCS	22 Dec 2011	18:36	11353WAB		mr
5	o10984.D	353WBLCSDO	353WBLCSD	22 Dec 2011	19:02	11353WAB		mr
6	o10985.D	SBLKWC354O	SBLKWC354	22 Dec 2011	19:27	11354WAC		mr
7	o10986.D	354WCLCSO	354WCLCS	22 Dec 2011	19:53	11354WAC		mr
8	o10987.D	354WCLCSDO	354WCLCSD	22 Dec 2011	20:19	11354WAC		mr
9	o10988.D	SBLKWA355O	SBLKWA355	22 Dec 2011	20:45	11355WAA		mr
10	o10989.D	355WALCSO	355WALCS	22 Dec 2011	21:11	11355WAA		mr
11	o10990.D	355WALCSDO	355WALCSD	22 Dec 2011	21:37	11355WAA		mr
12	o10991.D	XXXXXRE	6489839RE	22 Dec 2011	22:03	11353WAB		mr
13	o10992.D	XXXXXRE	6491241RE	22 Dec 2011	22:29	11353WAB		mr
14	o10993.D	XXXXX	6500489	22 Dec 2011	22:55	11353WAB		mr
15	o10994.D	XXXXX	6500490	22 Dec 2011	23:20	11353WAB		mr
16	o10995.D	XXXXX	6501048	22 Dec 2011	23:46	11353WAB		mr
17	o10996.D	XXXXX	6501834	23 Dec 2011	00:12	11353WAB		mr
18	o10997.D	XXXXX	6501950	23 Dec 2011	00:38	11353WAB		mr
19	o10998.D	XXXXX	6504216	23 Dec 2011	01:03	11354WAC		mr
20	o10999.D	XXXXX	6504217	23 Dec 2011	01:29	11354WAC		mr
21	o11000.D	XXXXX	6504218	23 Dec 2011	01:55	11354WAC		mr
22	o11001.D	XXXXX	6504219	23 Dec 2011	02:21	11354WAC		mr
23	o11002.D	XXXXX	6504220	23 Dec 2011	02:46	11354WAC		mr
24	o11003.D	XXXXX	6504228	23 Dec 2011	03:12	11354WAC		mr
25	o11004.D	XXXXX	6501811	23 Dec 2011	03:38	11355WAA		mr
26	o11005.D	XXXXX	6502652	23 Dec 2011	04:04	11355WAA		mr
27	o11006.D	XXXXX	6502653	23 Dec 2011	04:29	11355WAA		mr
28	o11007.D	XXXXX	6502654	23 Dec 2011	04:55	11355WAA		mr
29	o11008.D	XXXXX	6502655	23 Dec 2011	05:21	11355WAA		mr
30	o11009.D	XXXXX	6502656	23 Dec 2011	05:47	11355WAA		mr
31	o11010.D	XXXXX	6502657	23 Dec 2011	06:12	11355WAA		mr
32	o11011.D	XXXXX	6502658	23 Dec 2011	06:38	11355WAA		mr
33	o11012.D	XXXXX	6503042	23 Dec 2011	07:04	11355WAA		mr
34	o11013.D	XXXXX	6503416	23 Dec 2011	07:29	11355WAA		mr
35	o11014.D	XXXXX	6503417	23 Dec 2011	07:55	11355WAA		mr
36	o11015.D	XXXXX	6503418	23 Dec 2011	08:20	11355WAA		mr
37	o11016.D	XXXXX	6503454	23 Dec 2011	08:46	11355WAA		mr
38	o11017.D	XXXXX	6505238	23 Dec 2011	09:12	11355WAA		nu
39	o11018.D	XXXXX	6505434	23 Dec 2011	09:37	11355WAA		mr
40	o11019.D	XXXXX	6505238	23 Dec 2011	10:51	11355WAA		i
40	o11020.D	XXXXX	6505238	23 Dec 2011	11:24	11355WAA		ci

DH12.0173

Extraction/Distillation/Digestion Logs

Organic Extraction Batchlog Assigned to: 2807 Nicholas Shroyer Reviewed by: HB 12/22/11 Start Date: 12-21-11 Start time: 18:00

11355WAA625

Tech 1: NS 2807 Tech 2: _____

Dept: 26 Prep Analysis: 08108 625 Water Extraction Method 625

QC	Sample Code	Amt (mL)	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (mL)	pH 2	pH 11	BC	Comments
BLANKA	SBLKWA355	1000	SS1127726A	1.0	———	—	1.0	✓	✓	—	Tap H2O
LCSA	LCSWA355	1000	SS1127726A	1.0	MS1131126C MS1134126A MS1134226A	1.0 1.0 1.0	1.0	✓	✓	—	↓
LCSDA	LCSDWA355	1000	SS1127726A	1.0	MS1131126C MS1134126A MS1134226A	1.0 1.0 1.0	1.0	✓	✓	—	↓

Solvent Used	Lot No.
10N NaOH	101018
Methylene Chloride	116194
Sodium Sulfate	11353A
Sulfuric Acid	111682

Spike Solutions: Witness: _____

MS1131126C 625 ADD-IN MIX
MS1134126A APPIX MIX #1
MS1134226A LCS SPIKE MIX
SS1127726A 625 SURROGATE STANDARD

Sample #	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	FV (mL)	pH 2	pH 11	BC	Comments	Analyses	Due Date	Prio
1 6501811	62C50	942	SS1127726A	1.0	1.0	✓	✓	43A	cloudy brown cent x1	10334	12/28/2011	S
2 6502652	82RM1	941	SS1127726A	1.0	1.0	✓	✓	43A	↓ beige	10334	12/30/2011	P
3 6502653	82RM2	927	SS1127726A	1.0	1.0	✓	✓	43A	↓	10334	12/30/2011	P
4 6502654	82RM3	1051	SS1127726A	1.0	1.0	✓	✓	43A	↓	10334	12/30/2011	P
5 6502655	82RM5	945	SS1127726A	1.0	1.0	✓	✓	43A	↓	10334	12/30/2011	P
6 6502656	82RM8	911	SS1127726A	1.0	1.0	✓	✓	43A	↓	10334	12/30/2011	P
7 6502657	82RM9	932	SS1127726A	1.0	1.0	✓	✓	43A	white	10334	12/30/2011	P
8 6502658	82RM4	963	SS1127726A	1.0	1.0	✓	✓	43A	↓ ↓	10334	12/30/2011	P
9 6503042	DAY32	1050	SS1127726A	1.0	1.0	✓	✓	45A	clear	10334	12/30/2011	N
10 6503416	18206	1031	SS1127726A	1.0	1.0	✓	✓	43A	cloudy white	10334	01/03/2012	P
11 6503417	18207	1028	SS1127726A	1.0	1.0	✓	✓	43A	↓ brown	10334	01/03/2012	P
12 6503418	18210	1011	SS1127726A	1.0	1.0	✓	✓	43A	↓ cent x1	10334	01/03/2012	P
13 6503454	-W1--	1031	SS1127726A	1.0	1.0	✓	✓	43A	↓ sandy cent x3	10334	01/03/2012	N
14 6505238	I0964	940	SS1127726A	1.0	1.0	✓	✓	45A	↓ cent x2	10334	01/03/2012	N
15 6505434	62C51	901	SS1127726A	1.0	1.0	✓	✓	43A	clear beige	10334	12/30/2011	S

Rack ID:		Work Station	H2O Bench 2
Internal Standard	LBSOCKI LB-164133	Balance #	15661

DF = Dilution Factor FV = Final Volume Page 1 of 1

S-bath ID 1	87° C	S-bath ID 2	87° C	N-Evap	C	M-vap	C	11355WAA625

Documented temps are NIST corrected.

Semivolatiles by GC/MS Data

Case Narrative
Conformance/Nonconformance Summary

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Case Narrative

CLIENT: CH2M Hill, Inc.
SDG: DHR12

GC/MS Semivolatiles
Fraction: Semivolatiles by GC/MS

TCL 8270 (microwave)

Sample #	Client ID	Matrix Liquid	Matrix Solid	DF	Comments
6503455	HGR-IDW-S1		X	1	
6503456	HGR-IDW-S2		X	1	
6503457	HGR-IDW-S3		X	1	

See QC Reference List for Associated Batch QC Samples.

SAMPLE RECEIPT:

Samples were received in good condition and within temperature requirements.

HOLDING TIME:

All holding times were met.

PREPARATION/EXTRACTION/DIGESTION:

No problems were encountered.

CALIBRATION/STANDARDIZATION:

The retention time for perylene-d12 in CCV file cl0921 12/21/11 (instrument HP10623) is outside of specifications due to the trimming of the column during routine maintenance.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

MS/MSD

Site specific matrix QC samples were not submitted for this SDG. The batch matrix QC was performed on samples from another project. Therefore the matrix effects would not be relevant and matrix QC is not provided in the data package. Laboratory spike data (LCS) are provided.

DHR12 S178

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Case Narrative

CLIENT: CH2M Hill, Inc.
SDG: DHR12

GC/MS Semivolatiles
Fraction: Semivolatiles by GC/MS

All QC is within specifications.

SAMPLE ANALYSIS:

No problems were encountered with the analysis of the samples.

DATA INTERPRETATION:

No further interpretation is necessary for the data submitted.

Abbreviation Key	
UNSPK = Unspiked (for MS/MSD)	LOQ = Limit of Quantitation
MS = Matrix Spike	MDL = Method Detection Limit
MSD = Matrix Spike Duplicate	ND = Not Detected
BKG = Background (for Duplicate)	J = Estimated Value
D = Duplicate (DUP)	E= out of calibration range
LCS = Lab Control Sample	RE = Repreparation/Reanalysis
LCSD = Lab Control Sample Duplicate	* = Out of Specification

Narrative Reviewed and Approved 1/20/12 (Date) by Lydia C. Steinke
Specialist

DHR12 0179

Quality Control and Calibration Summary Forms

DHR12 0130

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LOQ/MDL Summary
GC/MS Semivolatiles

SDG: DHR12

Fraction: Semivolatiles by GC/MS

10727: TCL 8270 (microwave) Analyte Name	Default MDL	Default LOQ	Units
1,4-Dioxane	100	330	ug/kg
Phenol	17	33	ug/kg
bis(2-Chloroethyl)ether	17	33	ug/kg
2-Chlorophenol	17	33	ug/kg
Benzyl alcohol	170	500	ug/kg
2-Methylphenol	17	33	ug/kg
4-Methylphenol	17	33	ug/kg
N-Nitroso-di-n-propylamine	17	33	ug/kg
Hexachloroethane	33	170	ug/kg
Nitrobenzene	17	33	ug/kg
Isophorone	17	33	ug/kg
2-Nitrophenol	17	33	ug/kg
2,4-Dimethylphenol	17	33	ug/kg
bis(2-Chloroethoxy)methane	17	33	ug/kg
2,4-Dichlorophenol	17	33	ug/kg
4-Chloroaniline	17	33	ug/kg
4-Chloro-3-methylphenol	17	33	ug/kg
2-Methylnaphthalene	3	17	ug/kg
Hexachlorocyclopentadiene	170	500	ug/kg
2,4,6-Trichlorophenol	17	33	ug/kg
2,4,5-Trichlorophenol	17	33	ug/kg
1,1'-Biphenyl	17	33	ug/kg
2-Chloronaphthalene	7	33	ug/kg
2-Nitroaniline	17	33	ug/kg
Dimethylphthalate	67	170	ug/kg
2,6-Dinitrotoluene	17	33	ug/kg
Acenaphthylene	3	17	ug/kg
3-Nitroaniline	67	170	ug/kg
Acenaphthene	3	17	ug/kg
2,4-Dinitrophenol	300	1,000	ug/kg
4-Nitrophenol	170	500	ug/kg
2,4-Dinitrotoluene	67	170	ug/kg
Dibenzofuran	17	33	ug/kg
Diethylphthalate	67	170	ug/kg
Fluorene	3	17	ug/kg
4-Chlorophenyl-phenylether	17	33	ug/kg
4-Nitroaniline	67	170	ug/kg
4,6-Dinitro-2-methylphenol	170	500	ug/kg
N-Nitrosodiphenylamine	17	33	ug/kg
4-Bromophenyl-phenylether	17	33	ug/kg
Hexachlorobenzene	3	17	ug/kg
Pentachlorophenol	33	170	ug/kg
Phenanthrene	3	17	ug/kg
Anthracene	3	17	ug/kg
Carbazole	17	33	ug/kg
Di-n-butylphthalate	67	170	ug/kg
Fluoranthene	3	17	ug/kg

DHR12 6181

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LOQ/MDL Summary
GC/MS Semivolatiles

SDG: DHR12

Fraction: Semivolatiles by GC/MS

10727: TCL 8270 (microwave) Analyte Name	Default MDL	Default LOQ	Units
Pyrene	3	17	ug/kg
Butylbenzylphthalate	67	170	ug/kg
bis(2-Ethylhexyl)phthalate	67	170	ug/kg
3,3'-Dichlorobenzidine	100	330	ug/kg
Benzo(a)anthracene	3	17	ug/kg
Chrysene	3	17	ug/kg
Di-n-octylphthalate	67	170	ug/kg
Benzo(b)fluoranthene	3	17	ug/kg
Benzo(k)fluoranthene	3	17	ug/kg
Benzo(a)pyrene	3	17	ug/kg
Indeno(1,2,3-cd)pyrene	3	17	ug/kg
Dibenz(a,h)anthracene	3	17	ug/kg
Benzo(g,h,i)perylene	3	17	ug/kg

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Quality Control Reference List
GC/MS Semivolatiles

CLIENT: CH2M Hill, Inc.
SDG: DHR12

Fraction: Semivolatiles by GC/MS

Analysis	Batch Number	Sample Number	Analysis Date
TCL 8270 (microwave)	11353SLC026	SBLKLC353	12/21/2011 04:43:00
		353LCLCS	12/21/2011 05:08:00
		6503455	12/21/2011 11:59:00
		6503456	12/21/2011 12:24:00
		6503457	12/21/2011 12:48:00

DHR12 0183

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Quality Control Summary
Method Blank
GC/MS Semivolatiles
SDG: DHR12
Matrix: SOLID

Fraction: Semivolatiles by GC/MS

11353SLC026 / SBLKLC353 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
1,4-Dioxane	12/21/11	N.D.	ug/kg	100	330
Phenol	12/21/11	N.D.	ug/kg	17	33
bis(2-Chloroethyl)ether	12/21/11	N.D.	ug/kg	17	33
2-Chlorophenol	12/21/11	N.D.	ug/kg	17	33
Benzyl alcohol	12/21/11	N.D.	ug/kg	170	500
2-Methylphenol	12/21/11	N.D.	ug/kg	17	33
4-Methylphenol	12/21/11	N.D.	ug/kg	17	33
N-Nitroso-di-n-propylamine	12/21/11	N.D.	ug/kg	17	33
Hexachloroethane	12/21/11	N.D.	ug/kg	33	170
Nitrobenzene	12/21/11	N.D.	ug/kg	17	33
Isophorone	12/21/11	N.D.	ug/kg	17	33
2-Nitrophenol	12/21/11	N.D.	ug/kg	17	33
2,4-Dimethylphenol	12/21/11	N.D.	ug/kg	17	33
bis(2-Chloroethoxy)methane	12/21/11	N.D.	ug/kg	17	33
2,4-Dichlorophenol	12/21/11	N.D.	ug/kg	17	33
4-Chloroaniline	12/21/11	N.D.	ug/kg	17	33
4-Chloro-3-methylphenol	12/21/11	N.D.	ug/kg	17	33
2-Methylnaphthalene	12/21/11	N.D.	ug/kg	3	17
Hexachlorocyclopentadiene	12/21/11	N.D.	ug/kg	170	500
2,4,6-Trichlorophenol	12/21/11	N.D.	ug/kg	17	33
2,4,5-Trichlorophenol	12/21/11	N.D.	ug/kg	17	33
1,1'-Biphenyl	12/21/11	N.D.	ug/kg	17	33
2-Chloronaphthalene	12/21/11	N.D.	ug/kg	7	33
2-Nitroaniline	12/21/11	N.D.	ug/kg	17	33
Dimethylphthalate	12/21/11	N.D.	ug/kg	67	170
2,6-Dinitrotoluene	12/21/11	N.D.	ug/kg	17	33
Acenaphthylene	12/21/11	N.D.	ug/kg	3	17
3-Nitroaniline	12/21/11	N.D.	ug/kg	67	170
Acenaphthene	12/21/11	N.D.	ug/kg	3	17
2,4-Dinitrophenol	12/21/11	N.D.	ug/kg	330	1000
4-Nitrophenol	12/21/11	N.D.	ug/kg	170	500
2,4-Dinitrotoluene	12/21/11	N.D.	ug/kg	67	170
Dibenzofuran	12/21/11	N.D.	ug/kg	17	33
Diethylphthalate	12/21/11	N.D.	ug/kg	67	170
Fluorene	12/21/11	N.D.	ug/kg	3	17
4-Chlorophenyl-phenylether	12/21/11	N.D.	ug/kg	17	33
4-Nitroaniline	12/21/11	N.D.	ug/kg	67	170
4,6-Dinitro-2-methylphenol	12/21/11	N.D.	ug/kg	170	500
N-Nitrosodiphenylamine	12/21/11	N.D.	ug/kg	17	33
4-Bromophenyl-phenylether	12/21/11	N.D.	ug/kg	17	33
Hexachlorobenzene	12/21/11	N.D.	ug/kg	3	17
Pentachlorophenol	12/21/11	N.D.	ug/kg	33	170
Phenanthrene	12/21/11	N.D.	ug/kg	3	17
Anthracene	12/21/11	N.D.	ug/kg	3	17
Carbazole	12/21/11	N.D.	ug/kg	17	33

DHR12 81104

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Quality Control Summary
Method Blank
GC/MS Semivolatiles
SDG: DHR12
Matrix: SOLID

Fraction: Semivolatiles by GC/MS

11353SLC026 / SBLKLC353 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Di-n-butylphthalate	12/21/11	N.D.	ug/kg	67	170
Fluoranthene	12/21/11	N.D.	ug/kg	3	17
Pyrene	12/21/11	N.D.	ug/kg	3	17
Butylbenzylphthalate	12/21/11	N.D.	ug/kg	67	170
bis(2-Ethylhexyl)phthalate	12/21/11	N.D.	ug/kg	67	170
3,3'-Dichlorobenzidine	12/21/11	N.D.	ug/kg	100	330
Benzo(a)anthracene	12/21/11	N.D.	ug/kg	3	17
Chrysene	12/21/11	N.D.	ug/kg	3	17
Di-n-octylphthalate	12/21/11	N.D.	ug/kg	67	170
Benzo(b)fluoranthene	12/21/11	N.D.	ug/kg	3	17
Benzo(k)fluoranthene	12/21/11	N.D.	ug/kg	3	17
Benzo(a)pyrene	12/21/11	N.D.	ug/kg	3	17
Indeno(1,2,3-cd)pyrene	12/21/11	N.D.	ug/kg	3	17
Dibenz(a,h)anthracene	12/21/11	N.D.	ug/kg	3	17
Benzo(g,h,i)perylene	12/21/11	N.D.	ug/kg	3	17

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Quality Control Summary
Surrogates
GC/MS Semivolatiles
SDG: DHR12
Matrix: SOLID

Fraction: Semivolatiles by GC/MS

11353SLC026	Phenol-d6		2-Fluorophenol		2,4,6-Tribromophenol		Nitrobenzene-d5		2-Fluorobiphenyl		Terphenyl-d14	
	Spike Added	6666.667 ug/kg	Spike Added	6666.667 ug/kg	Spike Added	6666.667 ug/kg	Spike Added	3333.333 ug/kg	Spike Added	3333.333 ug/kg	Spike Added	3333.333 ug/kg
Sample	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits
SBLKLC353	80	42 - 130	89	39 - 136	85	28 - 139	83	45 - 123	85	56 - 121	94	43 - 124
353LCLCS	93	42 - 130	100	39 - 136	93	28 - 139	88	45 - 123	91	56 - 121	95	43 - 124
6503455	96	42 - 130	101	39 - 136	91	28 - 139	93	45 - 123	99	56 - 121	104	43 - 124
6503456	97	42 - 130	103	39 - 136	95	28 - 139	94	45 - 123	99	56 - 121	106	43 - 124
6503457	96	42 - 130	102	39 - 136	96	28 - 139	94	45 - 123	104	56 - 121	107	43 - 124

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate (LCSD)

SDG: DHR12
Matrix: SOLID

GC/MS Semivolatiles

Fraction: Semivolatiles by GC/MS

LCS: 353LCLCS	Batch: **11353SLC026** (Sample numbers: 6503455-6503457)							
Analyte	**Spike Added ug/kg**	**LCS Conc ug/kg**	**LCSD Conc ug/kg**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
1,4-Dioxane	1666.67	902.71		54		38-75		
Phenol	1666.67	1549.93		93		74-115		
bis(2-Chloroethyl)ether	1666.67	1545.81		93		77-115		
2-Chlorophenol	1666.67	1593.11		96		83-119		
Benzyl alcohol	1666.67	1551.06		93		68-111		
2-Methylphenol	1666.67	1583.4		95		80-119		
4-Methylphenol	1666.67	1455.77		87		74-116		
N-Nitroso-di-n-propylamine	1666.67	1451.56		87		70-113		
Hexachloroethane	1666.67	1563.56		94		76-109		
Nitrobenzene	1666.67	1591.52		95		78-122		
Isophorone	1666.67	1524		91		72-107		
2-Nitrophenol	1666.67	1491.59		89		81-114		
2,4-Dimethylphenol	1666.67	1587.7		95		83-120		
bis(2-Chloroethoxy)methane	1666.67	1493.04		90		82-113		
2,4-Dichlorophenol	1666.67	1540.17		92		87-117		
4-Chloroaniline	1666.67	627.91		38		10-97		
4-Chloro-3-methylphenol	1666.67	1503.94		90		74-119		
2-Methylnaphthalene	1666.67	1479.89		89		79-110		
Hexachlorocyclopentadiene	3333.33	2687.65		81		64-127		
2,4,6-Trichlorophenol	1666.67	1572.86		94		88-114		
2,4,5-Trichlorophenol	1666.67	1609.99		97		84-109		
1,1'-Biphenyl	1666.67	1548.12		93		82-106		
2-Chloronaphthalene	1666.67	1532.58		92		50-117		
2-Nitroaniline	1666.67	1580.73		95		83-118		
Dimethylphthalate	1666.67	1578.61		95		85-111		
2,6-Dinitrotoluene	1666.67	1680.7		101		79-115		
Acenaphthylene	1666.67	1746.24		105		68-120		
3-Nitroaniline	1666.67	1467.7		88		66-114		
Acenaphthene	1666.67	1535.97		92		83-111		
2,4-Dinitrophenol	3333.33	2568.91		77		39-126		
4-Nitrophenol	1666.67	1477.54		89		57-131		
2,4-Dinitrotoluene	1666.67	1571.62		94		80-116		
Dibenzofuran	1666.67	1521.88		91		85-110		
Diethylphthalate	1666.67	1584.12		95		82-113		
Fluorene	1666.67	1605.8		96		81-117		
4-Chlorophenyl-phenylether	1666.67	1530.58		92		79-110		
4-Nitroaniline	1666.67	1110.75		67		52-92		
4,6-Dinitro-2-methylphenol	1666.67	1517.1		91		60-113		
N-Nitrosodiphenylamine	1666.67	1597.47		96		86-112		
4-Bromophenyl-phenylether	1666.67	1505.9		90		79-117		
Hexachlorobenzene	1666.67	1560.95		94		79-115		
Pentachlorophenol	1666.67	1511.04		91		50-133		

DHR12 0187

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate (LCSD)

SDG: DHR12
Matrix: SOLID

GC/MS Semivolatiles

Fraction: Semivolatiles by GC/MS

LCS: 353LCLCS	Batch: **11353SLC026** (Sample numbers: 6503455-6503457)							
Analyte	Spike Added ug/kg	LCS Conc ug/kg	LCSD Conc ug/kg	LCS %Rec	LCSD %Rec	%Rec Limits	%RPD	%RPD Limits
Phenanthrene	1666.67	1586.31		95		83-109		
Anthracene	1666.67	1618.1		97		83-111		
Carbazole	1666.67	1575.08		95		83-111		
Di-n-butylphthalate	1666.67	1658.06		99		79-112		
Fluoranthene	1666.67	1661.06		100		80-113		
Pyrene	1666.67	1547.47		93		80-121		
Butylbenzylphthalate	1666.67	1541.08		92		77-125		
bis(2-Ethylhexyl)phthalate	1666.67	1503.79		90		75-124		
3,3'-Dichlorobenzidine	1666.67	710.54		43		17-116		
Benzo(a)anthracene	1666.67	1502.95		90		82-111		
Chrysene	1666.67	1459.47		88		81-111		
Di-n-octylphthalate	1666.67	1689.72		101		65-141		
Benzo(b)fluoranthene	1666.67	1756.31		105		61-133		
Benzo(k)fluoranthene	1666.67	1596.16		96		71-135		
Benzo(a)pyrene	1666.67	1673.28		100		63-138		
Indeno(1,2,3-cd)pyrene	1666.67	1589.66		95		64-128		
Dibenz(a,h)anthracene	1666.67	1548.61		93		67-129		
Benzo(g,h,i)perylene	1666.67	1608.26		96		63-130		

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID: cl0360z.d DFTPP Injection Date: 12/08/11

Instrument ID: HP10623 DFTPP Injection Time: 18:25

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	42.9
68	Less than 2.0% of mass 69	0.76 (1.65)1
69	Mass 69 relative abundance	46.3
70	Less than 2.0% of mass 69	0.23 (0.5)1
127	40.0 - 60.0% of mass 198	49.0
197	Less than 1.0% of mass 198	0.72
198	Base peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.76
275	10.0 - 30.0% of mass 198	24.0
365	Greater than 1.00% of mass 198	2.53
441	Present, and less than mass 443	7.7
442	Greater than 40.0 % of mass 198	50.5
443	17.0 - 23.0% of mass 442	8.71 (17.3)2

1-Value is % mass 69 2-Value is % mass of 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD30	cl0361a.d	12/08/11	19:04
02	STD3321 - SSTD.5	cl0362.d	12/08/11	19:28
03	STD3321 - SSTD120	cl0363.d	12/08/11	19:53
04	SSTD80	cl0364.d	12/08/11	20:17
05	SSTD50	cl0365.d	12/08/11	20:42
06	STD3321 - SSTD15	cl0366.d	12/08/11	21:06
07	STD3321 - SSTD5	cl0367.d	12/08/11	21:31
08	SSTD1	cl0368.d	12/08/11	21:55
09	MDL3321 - MDL0.5	cl0369.d	12/08/11	22:19
10	MDL3321 - MDL0.1	cl0370.d	12/08/11	22:44
11	ICV2691 - ICV050	cl0371.d	12/08/11	23:08
12	BAS3151 - SSTD50	cl0372.d	12/08/11	23:33
13	BAS3151 - SSTD120	cl0373.d	12/08/11	23:57
14	BAS3151 - SSTD80	cl0374.d	12/09/11	00:21
15	BAS3151 - SSTD30	cl0375.d	12/09/11	00:46
16	BAS3151 - SSTD15	cl0376.d	12/09/11	01:10
17	BAS3151 - SSTD5	cl0377.d	12/09/11	01:34
18	BASMDL3151 - MDL001	cl0378.d	12/09/11	01:58

DHB12 8189

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID: cl0360z.d DFTPP Injection Date: 12/08/11

Instrument ID: HP10623 DFTPP Injection Time: 18:25

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	42.9
68	Less than 2.0% of mass 69	0.76 (1.65)1
69	Mass 69 relative abundance	46.3
70	Less than 2.0% of mass 69	0.23 (0.5)1
127	40.0 - 60.0% of mass 198	49.0
197	Less than 1.0% of mass 198	0.72
198	Base peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.76
275	10.0 - 30.0% of mass 198	24.0
365	Greater than 1.00% of mass 198	2.53
441	Present, and less than mass 443	7.7
442	Greater than 40.0 % of mass 198	50.5
443	17.0 - 23.0% of mass 442	8.71 (17.3)2

1-Value is % mass 69 2-Value is % mass of 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
19	BAS2911 - BASICV050	cl0379.d	12/09/11	02:22

FORM V SV

PHR12 8198

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID: cl0920.d DFTPP Injection Date: 12/21/11

Instrument ID: HP10623 DFTPP Injection Time: 03:16

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	43.2
68	Less than 2.0% of mass 69	0.83 (1.76)1
69	Mass 69 relative abundance	47.0
70	Less than 2.0% of mass 69	0.25 (0.52)1
127	40.0 - 60.0% of mass 198	50.8
197	Less than 1.0% of mass 198	0.47
198	Base peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.52
275	10.0 - 30.0% of mass 198	23.5
365	Greater than 1.00% of mass 198	2.07
441	Present, and less than mass 443	7.92
442	Greater than 40.0 % of mass 198	47.8
443	17.0 - 23.0% of mass 442	8.88 (18.6)2

1-Value is % mass 69 2-Value is % mass of 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	STD3461 - SSTD30	cl0921.d	12/21/11	03:30
02	BAS3151 - SSTD50	cl0922.d	12/21/11	03:55
03	SBLKLC353	cl0924.d	12/21/11	04:43
04	353LCLCS	cl0925.d	12/21/11	05:08
05	6502912	cl0940.d	12/21/11	05:32
06	6501839	cl0926.d	12/21/11	05:56
07	6501840MS	cl0927.d	12/21/11	06:20
08	6501841MSD	cl0928.d	12/21/11	06:44
09	6497540	cl0929.d	12/21/11	07:09
10	6497541	cl0930.d	12/21/11	07:33
11	6500558	cl0931.d	12/21/11	07:57
12	6501843	cl0932.d	12/21/11	08:21
13	6501845	cl0934.d	12/21/11	09:09
14	6501846	cl0935.d	12/21/11	09:33
15	6501848	cl0937.d	12/21/11	10:22
16	6501849	cl0938.d	12/21/11	10:46
17	6501850	cl0939.d	12/21/11	11:10
18	6503455	cl0942.d	12/21/11	11:59

BHR12 8891

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID: cl0920.d DFTPP Injection Date: 12/21/11

Instrument ID: HP10623 DFTPP Injection Time: 03:16

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	43.2
68	Less than 2.0% of mass 69	0.83 (1.76)1
69	Mass 69 relative abundance	47.0
70	Less than 2.0% of mass 69	0.25 (0.52)1
127	40.0 - 60.0% of mass 198	50.8
197	Less than 1.0% of mass 198	0.47
198	Base peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.52
275	10.0 - 30.0% of mass 198	23.5
365	Greater than 1.00% of mass 198	2.07
441	Present, and less than mass 443	7.92
442	Greater than 40.0 % of mass 198	47.8
443	17.0 - 23.0% of mass 442	8.88 (18.6)2

1-Value is % mass 69 2-Value is % mass of 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
19	6503456	cl0943.d	12/21/11	12:24
20	6503457	cl0944.d	12/21/11	12:48
21	6504018	cl0945.d	12/21/11	13:12
22	6504019	cl0946.d	12/21/11	13:36
23	6504020	cl0947.d	12/21/11	14:01

DHR12 6192

6B

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP10623 Calibration Date(s): 12/08/11 12/08/11

Calibration Times: 19:04 21:55

Min $\overline{RRF}$ for SPCC(#) = 0.050 Max %RSD for CCC(*) = 30%

LAB FILE ID:RRF0.5 = cl0362.d RRF1 = cl0368.d RRF5 = cl0367.d RRF15 = cl0366.d
RRF30 = cl0361a.d RRF50 = cl0365.d RRF80 = cl0364.d RRF120 = cl0363.d

COMPOUND		RRF0.5	RRF1	RRF5	RRF15	RRF30	RRF50	RRF80	RRF120	$\overline{RRF}$	% RSD	CAL. METHOD	
1,4-Dioxane				0.746	0.629	0.677	0.671	0.642	0.647	0.669	6	AVG	
N-Nitrosodimethylamine				1.204	1.083	1.249	1.177	1.242	1.242	1.199	5	AVG	
Pyridine				2.114	1.925	1.984	1.983	1.886	2.039	1.988	4	AVG	
2-Picoline				2.149	2.062	2.217	2.151	2.186	2.157	2.154	2	AVG	
N-Nitrosomethylethylamine				1.154	1.018	1.045	1.047	1.058	1.044	1.061	4	AVG	
Methyl methanesulfonate				1.251	1.156	1.167	1.177	1.175	1.170	1.183	3	AVG	
N-Nitrosodiethylamine			0.981	1.006	0.952	1.001	1.001	1.017	1.006	0.995	2	AVG	
Ethyl methanesulfonate			1.038	0.959	0.896	0.939	0.939	0.967	0.952	0.956	5	AVG	
Aniline			3.254	3.331	3.206	3.401	3.416	3.534	3.489	3.376	4	AVG	
Phenol		*	3.025	2.750	2.811	2.953	2.977	3.108	3.087	2.959	5	AVG	*
bis(2-Chloroethyl)ether			2.184	2.069	1.997	2.040	2.064	2.141	2.099	2.085	3	AVG	
2-Chlorophenol			1.464	1.560	1.449	1.523	1.526	1.604	1.585	1.530	4	AVG	
1,3-Dichlorobenzene			1.628	1.539	1.488	1.569	1.543	1.580	1.567	1.559	3	AVG	
1,4-Dichlorobenzene		*	1.627	1.625	1.514	1.582	1.602	1.610	1.607	1.595	2	AVG	*
Benzyl alcohol				1.235	1.244	1.307	1.360	1.413	1.402	1.327	6	AVG	
1,2-Dichlorobenzene			1.519	1.516	1.429	1.489	1.511	1.575	1.546	1.512	3	AVG	
2-Methylphenol			1.515	1.795	1.731	1.858	1.857	1.919	1.861	1.791	8	AVG	
2,2'-oxybis(1-Chloropropane)			3.346	3.145	3.045	3.116	3.119	3.110	3.039	3.132	3	AVG	
bis(2-Chloroisopropyl)ether			3.346	3.145	3.045	3.116	3.119	3.110	3.039	3.132	3	AVG	
N-Nitrosopyrrolidine			1.227	1.124	1.153	1.197	1.192	1.261	1.200	1.193	4	AVG	
Acetophenone			2.484	2.769	2.924	2.915	2.930	2.878	2.897	2.828	6	AVG	
N-Nitroso-di-n-propylamine		#	1.848	1.876	1.777	1.873	1.859	1.874	1.806	1.845	2	AVG	#
N-Nitrosomorpholine				1.419	1.337	1.388	1.508	1.530	1.461	1.440	5	AVG	
4-Methylphenol			2.104	2.056	2.155	2.202	2.235	2.355	2.283	2.199	5	AVG	
o-Toluidine			3.110	3.217	3.138	3.356	3.310	3.448	3.474	3.293	4	AVG	
Hexachloroethane				0.664	0.621	0.658	0.676	0.670	0.673	0.660	3	AVG	
Nitrobenzene			0.542	0.548	0.531	0.544	0.545	0.535	0.544	0.541	1	AVG	
N-Nitrosopiperidine			0.220	0.232	0.224	0.230	0.223	0.221	0.225	0.225	2	AVG	
Isophorone			1.036	1.052	1.031	1.054	1.054	1.023	1.049	1.043	1	AVG	
2-Nitrophenol		*	0.191	0.189	0.189	0.201	0.204	0.201	0.206	0.197	4	AVG	*
2,4-Dimethylphenol			0.448	0.460	0.463	0.481	0.482	0.489	0.490	0.473	3	AVG	
O,O,O-triethylphosphorothioate				0.201	0.185	0.194	0.197	0.189	0.193	0.193	3	AVG	
bis(2-Chloroethoxy)methane			0.642	0.607	0.564	0.584	0.584	0.561	0.561	0.586	5	AVG	
Benzoic acid				0.363	0.383	0.358	0.371	0.385	0.401	0.377	4	AVG	
2,4-Dichlorophenol		*	0.279	0.291	0.293	0.310	0.304	0.310	0.311	0.300	4	AVG	*
1,2,4-Trichlorobenzene				0.310	0.311	0.330	0.325	0.324	0.340	0.323	4	AVG	
Naphthalene			1.076	1.074	1.117	1.076	1.110	1.098	1.094	1.144	1.099	2	AVG
4-Chloroaniline				0.447	0.461	0.463	0.485	0.466	0.472	0.495	0.470	3	AVG
2,6-Dichlorophenol				0.289	0.279	0.293	0.311	0.309	0.306	0.316	0.301	4	AVG
Hexachloropropene					0.188	0.194	0.210	0.211	0.216	0.222	0.207	6	AVG
Hexachlorobutadiene		*		0.186	0.175	0.165	0.176	0.176	0.172	0.177	0.175	4	AVG
Caprolactam					0.170	0.184	0.189	0.181	0.169	0.175	0.178	4	AVG
N-Nitrosodi-n-butylamine					0.538	0.508	0.378	0.387	0.377	0.379	0.428	17	1STDEG
4-Chloro-3-methylphenol		*		0.473	0.428	0.453	0.457	0.453	0.450	0.457	0.453	3	AVG
Safrole					0.298	0.302	0.305	0.308	0.302	0.311	0.304	1	AVG
2-Methylnaphthalene			0.733	0.782	0.786	0.741	0.759	0.773	0.778	0.788	0.767	3	AVG
1-Methylnaphthalene			0.744	0.718	0.738	0.716	0.729	0.730	0.731	0.750	0.732	2	AVG
Hexachlorocyclopentadiene		#			0.175	0.204	0.257	0.257	0.260	0.278	0.239	17	1STDEG
1,2,4,5-Tetrachlorobenzene				0.415	0.467	0.457	0.503	0.480	0.496	0.515	0.476	7	AVG
cis-Isosafrole					0.731	0.682	0.736	0.705	0.706	0.739	0.716	3	AVG
2,4,6-Trichlorophenol		*		0.341	0.303	0.335	0.362	0.350	0.353	0.367	0.344	6	AVG
2,4,5-Trichlorophenol				0.341	0.371	0.366	0.385	0.384	0.398	0.409	0.379	6	AVG

DHR12 8193

12-09-2011

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP10623 Calibration Date(s): 12/08/11 12/08/11

Calibration Times: 19:04 21:55

Min $\overline{RRF}$ for SPCC(#) = 0.050 Max %RSD for CCC(*) = 30%

LAB FILE ID:RRF0.5 = cl0362.d RRF1 = cl0368.d RRF5 = cl0367.d RRF15 = cl0366.d
RRF30 = cl0361a.d RRF50 = cl0365.d RRF80 = cl0364.d RRF120 = cl0363.d

COMPOUND		RRF0.5	RRF1	RRF5	RRF15	RRF30	RRF50	RRF80	RRF120	$\overline{RRF}$	% RSD	CAL. METHOD
trans-Isosafrole				0.537	0.489	0.550	0.537	0.530	0.549	0.532	4	AVG
Isosafrole				0.478	0.435	0.490	0.478	0.471	0.488	0.474	4	AVG
1,1'-Biphenyl			1.398	1.454	1.424	1.490	1.462	1.422	1.510	1.451	3	AVG
2-Chloronaphthalene			1.193	1.203	1.096	1.409	1.325	1.001	1.427	1.236	13	AVG
1-Chloronaphthalene			1.090	1.100	1.118	1.066	1.084	1.154	1.122	1.105	3	AVG
Diphenyl ether			0.793	0.795	0.747	0.811	0.792	0.791	0.813	0.792	3	AVG
2-Nitroaniline			0.374	0.368	0.376	0.406	0.402	0.408	0.416	0.393	5	AVG
1,4-Naphthoquinone				0.466	0.449	0.513	0.508	0.488	0.491	0.486	5	AVG
1,4-Dinitrobenzene				0.186	0.206	0.221	0.229	0.232	0.233	0.218	9	AVG
Dimethylphthalate				1.416	1.319	1.376	1.369	1.379	1.385	1.374	2	AVG
1,3-Dinitrobenzene				0.245	0.248	0.261	0.264	0.270	0.268	0.259	4	AVG
2,6-Dinitrotoluene			0.244	0.326	0.305	0.331	0.315	0.317	0.325	0.309	10	AVG
Acenaphthylene		1.523	1.570	1.695	1.676	1.782	1.750	1.790	1.840	1.703	6	AVG
3-Nitroaniline			0.353	0.346	0.340	0.362	0.352	0.355	0.360	0.352	2	AVG
Acenaphthene	*	1.322	1.240	1.159	1.117	1.199	1.182	1.191	1.238	1.206	5	AVG *
2,4-Dinitrophenol	#			0.122	0.156	0.179	0.185	0.210	0.216	0.178	20	1STDEG #+
Pentachlorobenzene			0.457	0.450	0.411	0.446	0.435	0.451	0.457	0.444	4	AVG
4-Nitrophenol	#			0.218	0.241	0.255	0.255	0.256	0.256	0.247	6	AVG #
Dibenzofuran			1.714	1.735	1.623	1.713	1.703	1.736	1.766	1.713	3	AVG
2,4-Dinitrotoluene				0.435	0.409	0.435	0.439	0.442	0.450	0.435	3	AVG
1-Naphthylamine				1.226	1.166	1.319	1.304	1.289	1.323	1.271	5	AVG
2,3,4,6-Tetrachlorophenol			0.248	0.303	0.299	0.321	0.319	0.320	0.331	0.306	9	AVG
2-Naphthylamine				1.236	1.250	1.344	1.308	1.293	1.302	1.289	3	AVG
Diethylphthalate				1.452	1.389	1.437	1.431	1.409	1.441	1.426	2	AVG
Thionazin				0.275	0.271	0.285	0.279	0.282	0.283	0.279	2	AVG
Fluorene		1.245	1.425	1.457	1.350	1.441	1.458	1.499	1.544	1.427	6	AVG
4-Chlorophenyl-phenylether			0.689	0.676	0.659	0.708	0.700	0.725	0.745	0.700	4	AVG
5-Nitro-o-toluidine			0.371	0.451	0.410	0.444	0.448	0.439	0.443	0.430	7	AVG
4-Nitroaniline			0.407	0.409	0.365	0.376	0.377	0.377	0.381	0.384	4	AVG
4,6-Dinitro-2-methylphenol				0.101	0.119	0.134	0.144	0.149	0.154	0.134	15	AVG
N-Nitrosodiphenylamine (1)	*		0.593	0.656	0.636	0.653	0.656	0.651	0.664	0.644	4	AVG *
1,2-Diphenylhydrazine			1.022	1.000	1.006	1.030	1.042	1.000	1.028	1.018	2	AVG
Tetraethyldithiopyrophosphate				0.152	0.150	0.147	0.149	0.142	0.145	0.147	3	AVG
1,3,5-Trinitrobenzene				0.060	0.080	0.092	0.100	0.105	0.107	0.091	20	1STDEG +
Diallate (peak 1)				0.498	0.484	0.488	0.493	0.468	0.474	0.484	2	AVG
Phorate			0.554	0.647	0.663	0.696	0.932	0.906	0.913	0.759	20	1STDEG
Phenacetin			0.420	0.483	0.452	0.481	0.476	0.458	0.470	0.463	5	AVG
4-Bromophenyl-phenylether				0.198	0.188	0.194	0.197	0.194	0.201	0.195	2	AVG
Diallate (peak 2)				0.310	0.304	0.305	0.299	0.283	0.289	0.298	3	AVG
Hexachlorobenzene		0.173	0.179	0.171	0.174	0.171	0.182	0.182	0.182	0.177	3	AVG
Dimethoate				0.421	0.401	0.422	0.418	0.387	0.383	0.405	4	AVG
Diallate TRANS/CIS				0.451	0.439	0.442	0.445	0.422	0.428	0.438	2	AVG
Pentachlorophenol	*			0.076	0.086	0.102	0.109	0.117	0.124	0.102	18	1STDEG *
Pentachloronitrobenzene				0.093	0.094	0.094	0.098	0.094	0.095	0.095	2	AVG
4-Aminobiphenyl			0.813	0.844	0.800	0.801	0.772	0.686	0.696	0.773	8	AVG
Pronamide			0.320	0.348	0.347	0.355	0.358	0.349	0.361	0.348	4	AVG
Dinoseb				0.130	0.167	0.200	0.214	0.226	0.234	0.195	20	1STDEG
Phenanthrene		1.058	1.133	1.098	1.074	1.105	1.108	1.098	1.119	1.099	2	AVG
Anthracene		1.042	1.138	1.125	1.099	1.151	1.152	1.128	1.134	1.121	3	AVG
Carbazole			1.040	1.088	1.068	1.083	1.105	1.085	1.112	1.083	2	AVG
Methyl parathion				0.267	0.291	0.304	0.298	0.283	0.277	0.287	5	AVG
Di-n-butylphthalate				1.279	1.293	1.367	1.379	1.352	1.262	1.322	4	AVG

+ %RSD is less than or equal to 20%; however, value rounds to 20.

(1) Cannot be separated from Diphenylamine

DHR12 0194

FORM VI SV-1

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP10623 Calibration Date(s): 12/08/11 12/08/11

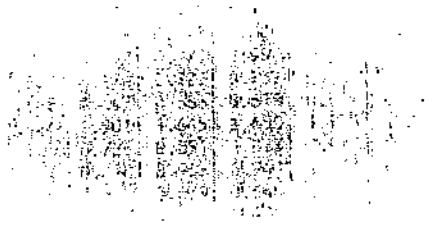
Calibration Times: 19:04 21:55

Min $\overline{RRF}$ for SPCC(#) = 0.050 Max %RSD for CCC(*) = 30%

LAB FILE ID:RRF0.5 = cl0362.d RRF1 = cl0368.d RRF5 = cl0367.d RRF15 = cl0366.d
RRF30 = cl0361a.d RRF50 = cl0365.d RRF80 = cl0364.d RRF120 = cl0363.d

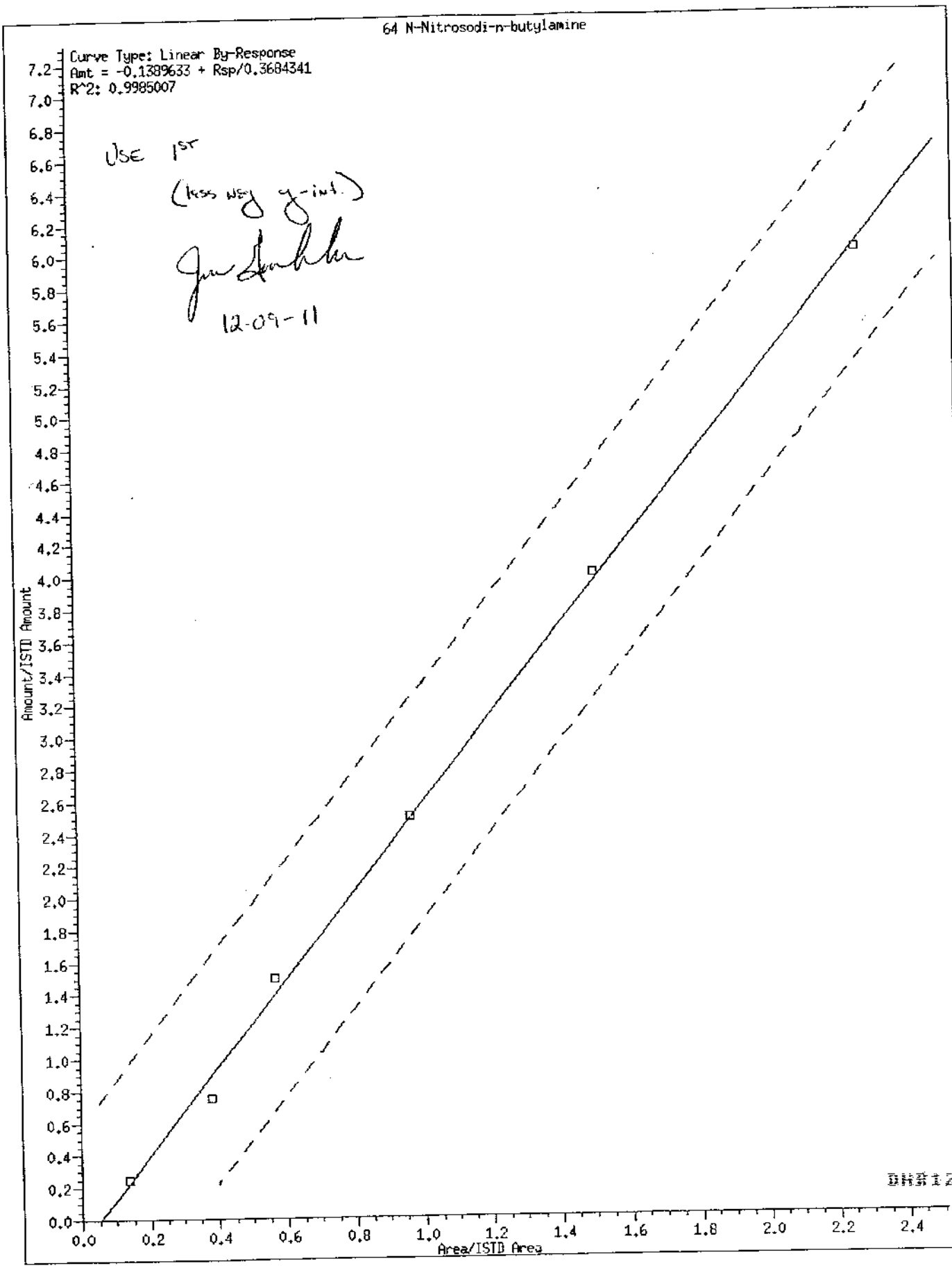
COMPOUND	RRF0.5	RRF1	RRF5	RRF15	RRF30	RRF50	RRF80	RRF120	$\overline{RRF}$	% RSD	CAL. METHOD	
Parathion			0.161	0.172	0.182	0.188	0.182	0.182	0.178	6	AVG	
4-Nitroquinoline-1-oxide			0.068	0.088	0.108	0.112	0.114	0.109	0.100	18	1STDEG	
Isodrin		0.134	0.133	0.122	0.125	0.128	0.124	0.126	0.128	4	AVG	
Fluoranthene	* 1.143	1.180	1.187	1.192	1.237	1.243	1.237	1.219	1.205	3	AVG	*
Benzidine			0.652	0.649	0.734	0.749	0.643	0.571	0.666	10	AVG	
Pyrene	1.217	1.155	1.114	1.085	1.097	1.103	1.152	1.149	1.134	4	AVG	
p-Dimethylaminoazobenzene		0.186	0.200	0.207	0.226	0.227	0.235	0.241	0.218	9	AVG	
Chlorobenzilate		0.267	0.328	0.321	0.325	0.329	0.329	0.337	0.319	7	AVG	
3,3'-Dimethylbenzidine			0.606	0.594	0.669	0.686	0.658	0.664	0.646	6	AVG	
Butylbenzylphthalate			0.492	0.486	0.512	0.513	0.523	0.532	0.510	3	AVG	
2-Acetylaminofluorene			0.398	0.407	0.431	0.445	0.452	0.454	0.431	5	AVG	
3,3'-Dichlorobenzidine			0.333	0.342	0.353	0.365	0.388	0.390	0.362	6	AVG	
4,4'-Methylenebis(2-Chloroanil			0.174	0.180	0.198	0.197	0.202	0.204	0.192	6	AVG	
Benzo(a)anthracene	0.894	0.898	0.959	0.906	0.993	1.000	1.061	1.088	0.975	8	AVG	
Chrysene	0.971	0.943	0.974	0.952	0.977	0.990	1.060	1.088	0.994	5	AVG	
bis(2-Ethylhexyl)phthalate			0.680	0.670	0.722	0.732	0.760	0.779	0.724	6	AVG	
6-Methylchrysene			0.668	0.647	0.686	0.679	0.721	0.725	0.688	4	AVG	
Di-n-octylphthalate	*		1.424	1.501	1.645	1.650	1.754	1.818	1.632	9	AVG	*
Dibenz(a,h)acridine			0.724	0.785	0.851	0.875	0.918	0.900	0.842	9	AVG	
Dibenz(a,j)acridine			0.851	0.890	0.956	0.941	1.086	0.989	0.939	6	AVG	
7,12-Dimethylbenz[a]anthracene		0.478	0.539	0.537	0.639	0.645	0.653	0.676	0.595	13	AVG	
Benzo(b)fluoranthene	1.209	1.067	1.310	1.197	1.331	1.435	1.402	1.482	1.304	11	AVG	
Quinoline			0.807	0.797	0.789	0.788	0.773	0.785	0.790	1	AVG	
Benzo(k)fluoranthene	1.305	1.335	1.242	1.301	1.438	1.406	1.393	1.388	1.351	5	AVG	
Benzo(a)pyrene	* 1.035	1.087	1.114	1.166	1.227	1.237	1.276	1.284	1.178	8	AVG	*
3-Methylcholanthrene		0.531	0.562	0.573	0.619	0.619	0.648	0.645	0.600	7	AVG	
NDPA as diphenylamine			0.656	0.636	0.653	0.656	0.651	0.664	0.653	1	AVG	
Indeno(1,2,3-cd)pyrene	1.231	1.201	1.106	1.162	1.229	1.249	1.261	1.258	1.212	4	AVG	
Dibenz(a,h)anthracene	0.861	0.930	0.942	0.993	1.044	1.059	1.062	1.062	0.994	8	AVG	
Benzo(g,h,i)perylene	1.082	0.896	0.958	0.986	1.028	1.026	1.056	1.042	1.009	6	AVG	
Indene			2.865	2.817	2.954	3.023	3.126	3.143	2.988	4	AVG	
2-Fluorophenol			1.526	1.500	1.586	1.559	1.632	1.604	1.568	3	AVG	
Phenol-d5			2.422	2.385	2.510	2.534	2.634	2.585	2.512	4	AVG	
Phenol-d6			2.422	2.385	2.510	2.534	2.634	2.585	2.512	4	AVG	
Nitrobenzene-d5			0.530	0.504	0.520	0.523	0.515	0.527	0.520	2	AVG	
2-Fluorobiphenyl			1.264	1.197	1.291	1.255	1.259	1.304	1.261	3	AVG	
2,4,6-Tribromophenol			0.132	0.128	0.136	0.138	0.143	0.148	0.137	5	AVG	
Terphenyl-d14			0.694	0.680	0.707	0.731	0.758	0.784	0.726	5	AVG	

Average %RSD 5

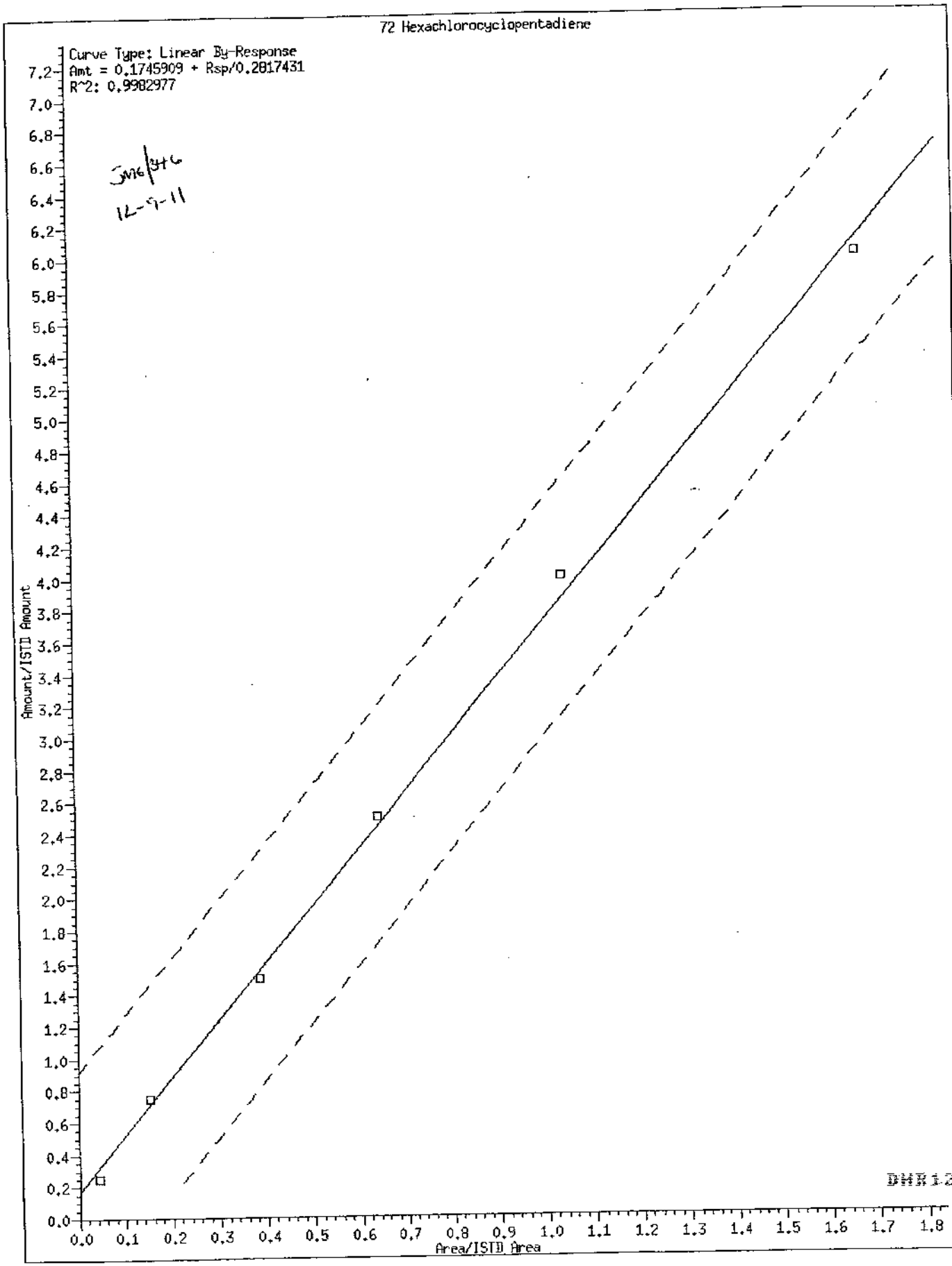


4,6-Dinitro-2-methylphenol and 4-Nitrophenol are at 10 ng/ul in the 5 standard.
Benzidine Levels in the 5,15,30,50,80,120 standards are 15,45,90,150,240,360 ng/ul, respectively.
Benzoic acid, Pentachlorophenol and 2,4-Dinitrophenol are at 15 ng/ul, 30 ng/ul,40 ng/ul in the 5,15,30 standards.

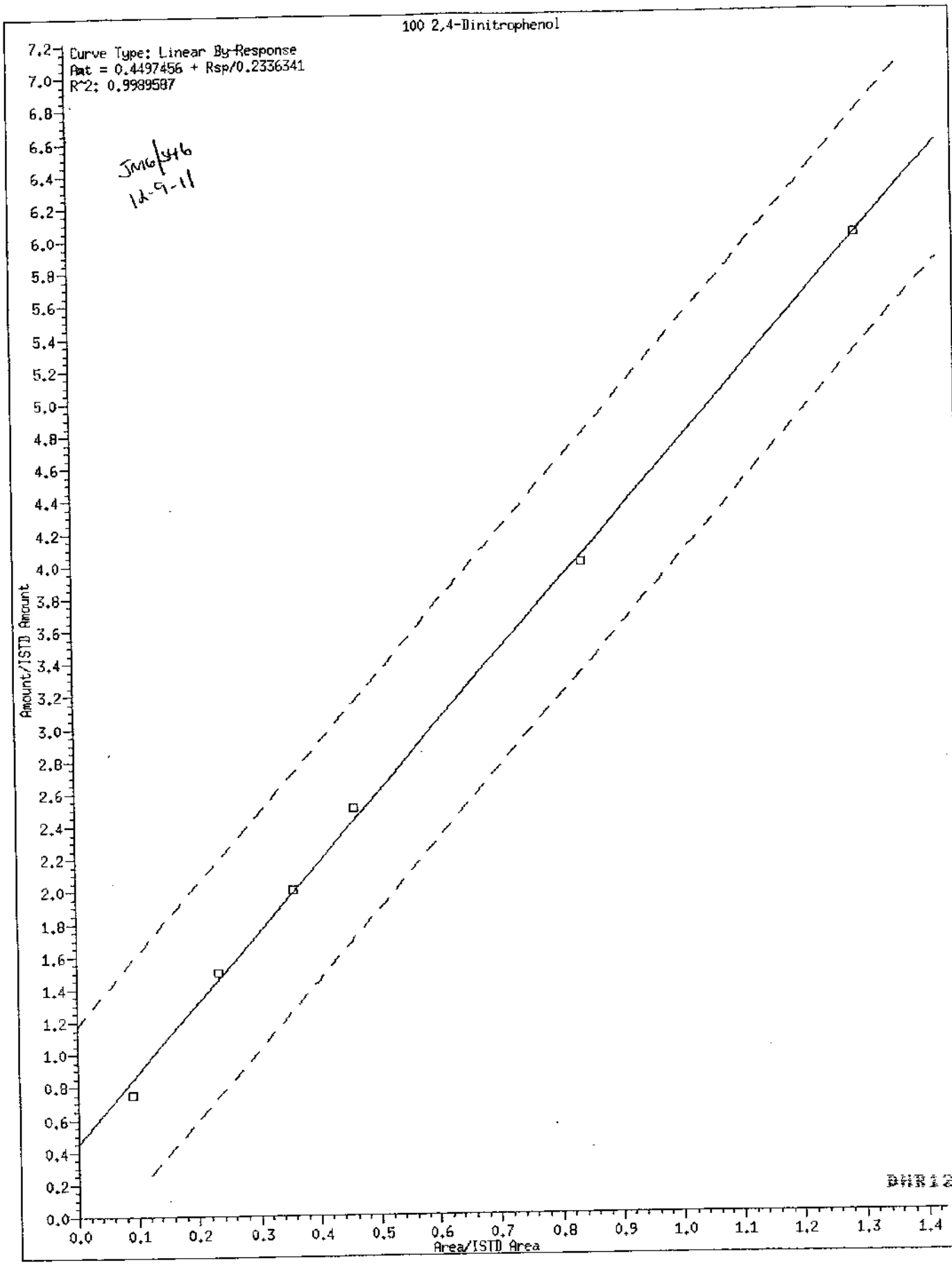
FORM VI SV-1


64 N-Nitrosodi-n-butylamine
Curve Type: Linear By-Response
Amt = -0.1389633 + Rsp/0.3684341
R^2: 0.9985007
USE 1ST
(less wgt g-int.)
12-09-11
Amount/ISTD Amount
Area/ISTD Area
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2
2.4
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2
2.4
2.6
2.8
3.0
3.2
3.4
3.6
3.8
4.0
4.2
4.4
4.6
4.8
5.0
5.2
5.4
5.6
5.8
6.0
6.2
6.4
6.6
6.8
7.0
7.2

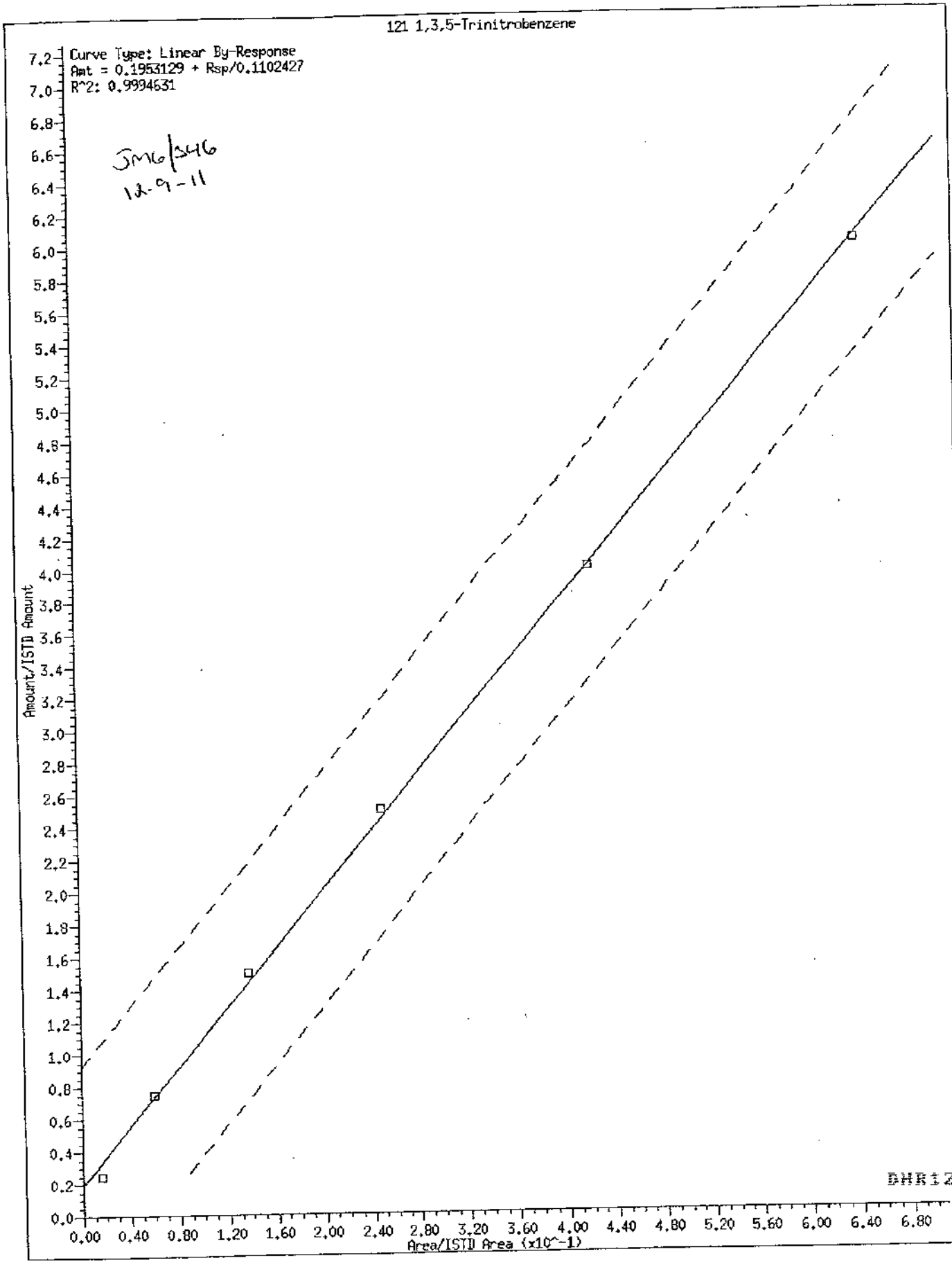
DH812 0596


72 Hexachlorocyclopentadiene
Curve Type: Linear By-Response
Amt = 0.1745909 + Rsp/0.2817431
R^2: 0.9982977
SMG/SHG
12-9-11
Amount/ISTD Amount
Area/ISTD Area
0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8
0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0 2.2 2.4 2.6 2.8 3.0 3.2 3.4 3.6 3.8 4.0 4.2 4.4 4.6 4.8 5.0 5.2 5.4 5.6 5.8 6.0 6.2 6.4 6.6 6.8 7.0 7.2

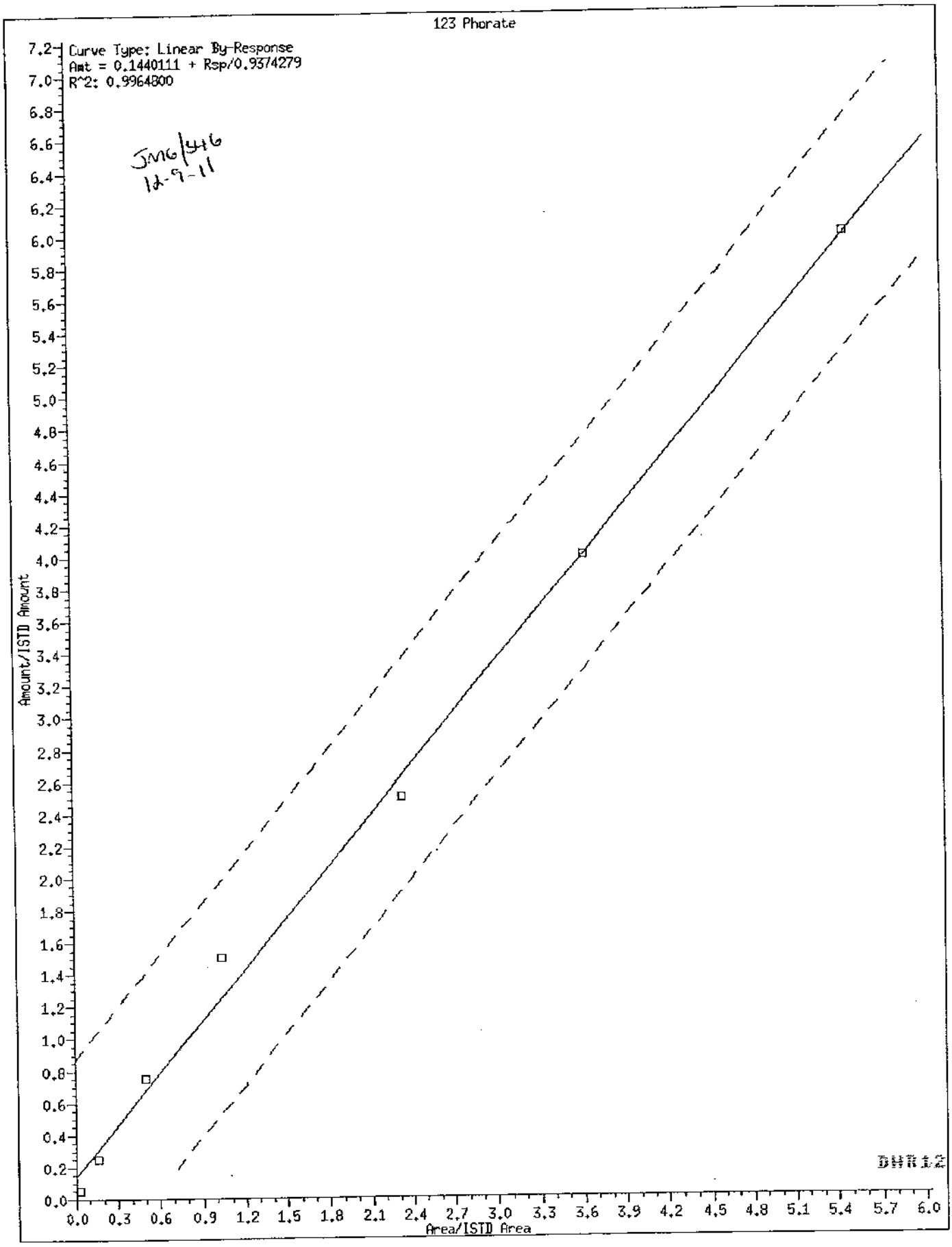
DHR12 0157

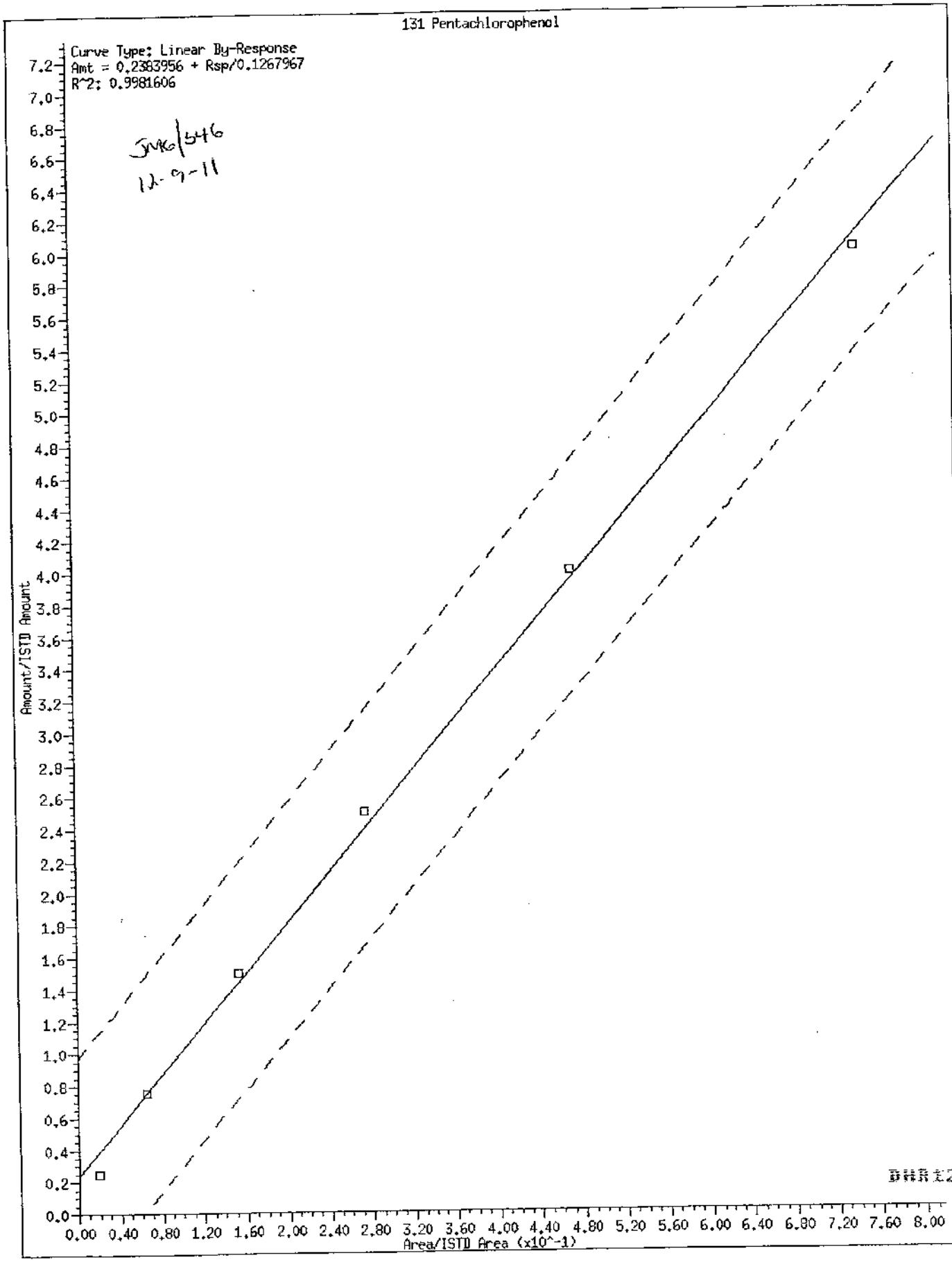

100 2,4-Dinitrophenol
Curve Type: Linear By-Response
Amt = 0.4497456 + Rsp/0.2336341
R^2: 0.9989587
JMG/SYG
12-9-11
Amount/ISTD Amount
Area/ISTD Area
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2
2.4
2.6
2.8
3.0
3.2
3.4
3.6
3.8
4.0
4.2
4.4
4.6
4.8
5.0
5.2
5.4
5.6
5.8
6.0
6.2
6.4
6.6
6.8
7.0
7.2

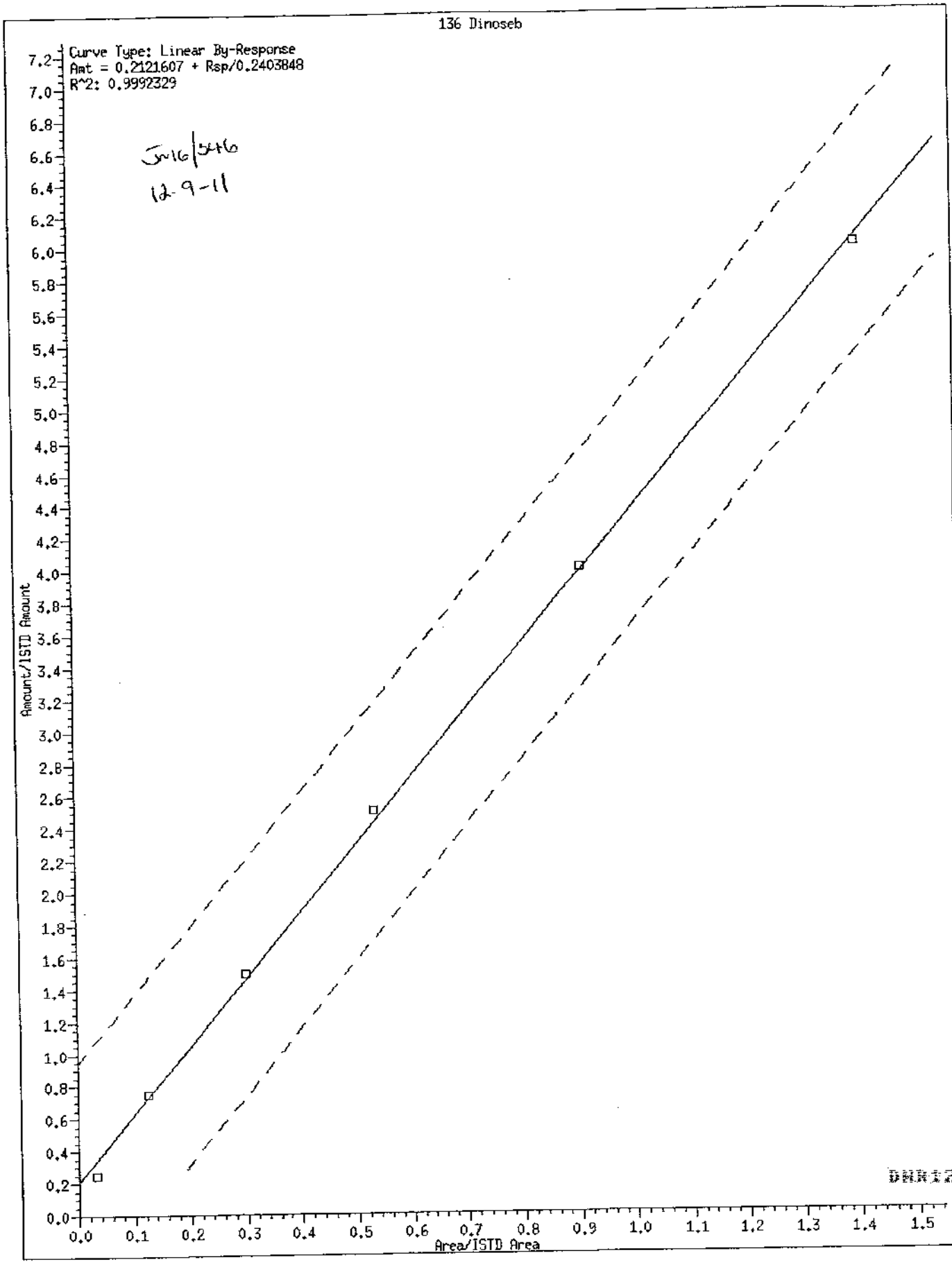
DHR12 0198


121 1,3,5-Trinitrobenzene
Curve Type: Linear By-Response
Amt = 0.1953129 + Rsp/0.1102427
R^2: 0.9994631
JM6/546
12-9-11
Amount/ISTD Amount
Area/ISTD Area (x10^-1)
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2
2.4
2.6
2.8
3.0
3.2
3.4
3.6
3.8
4.0
4.2
4.4
4.6
4.8
5.0
5.2
5.4
5.6
5.8
6.0
6.2
6.4
6.6
6.8
7.0
7.2
0.00
0.40
0.80
1.20
1.60
2.00
2.40
2.80
3.20
3.60
4.00
4.40
4.80
5.20
5.60
6.00
6.40
6.80

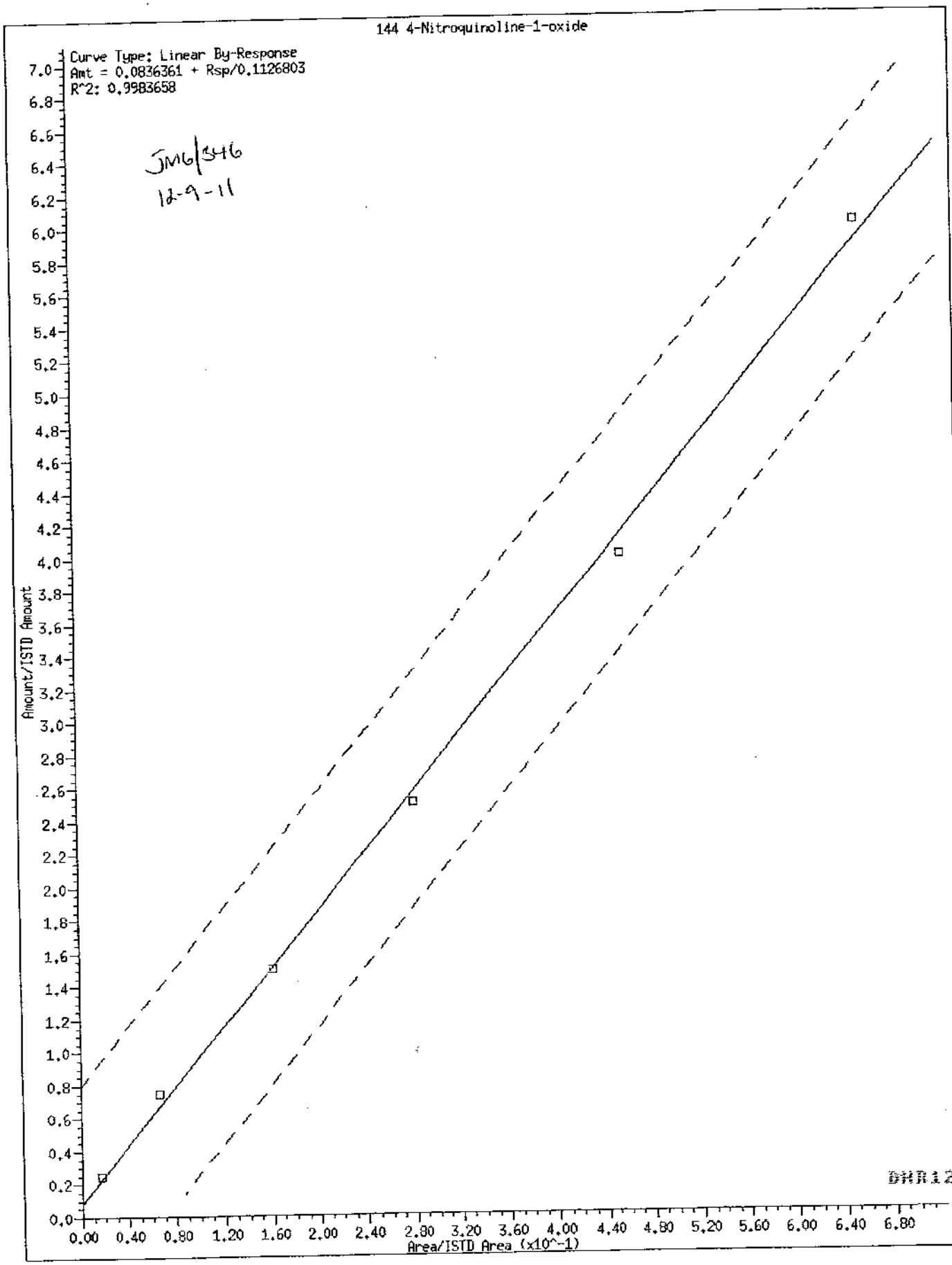
BHR12 8199


123 Phorate
Curve Type: Linear By-Response
Amt = 0.1440111 + Rsp/0.9374279
R^2: 0.9964800
JM6/4/6
12-9-11
Amount/ISTD Amount
Area/ISTD Area
0.0 0.3 0.6 0.9 1.2 1.5 1.8 2.1 2.4 2.7 3.0 3.3 3.6 3.9 4.2 4.5 4.8 5.1 5.4 5.7 6.0
0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0 2.2 2.4 2.6 2.8 3.0 3.2 3.4 3.6 3.8 4.0 4.2 4.4 4.6 4.8 5.0 5.2 5.4 5.6 5.8 6.0 6.2 6.4 6.6 6.8 7.0 7.2


131 Pentachlorophenol
Curve Type: Linear By-Response
Amt = 0.2383956 + Rsp/0.1267967
R^2: 0.9981606
JMK 1546
12-9-11
Amount/ISTD Amount
Area/ISTD Area (x10^-1)
0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0 2.2 2.4 2.6 2.8 3.0 3.2 3.4 3.6 3.8 4.0 4.2 4.4 4.6 4.8 5.0 5.2 5.4 5.6 5.8 6.0 6.2 6.4 6.6 6.8 7.0 7.2
0.00 0.40 0.80 1.20 1.60 2.00 2.40 2.80 3.20 3.60 4.00 4.40 4.80 5.20 5.60 6.00 6.40 6.80 7.20 7.60 8.00


136 Dinoseb
Curve Type: Linear By-Response
Amt = 0.2121607 + Rsp/0.2403848
R^2: 0.9992329
Jw16/546
12-9-11
Amount/ISTD Amount
Area/ISTD Area
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2
2.4
2.6
2.8
3.0
3.2
3.4
3.6
3.8
4.0
4.2
4.4
4.6
4.8
5.0
5.2
5.4
5.6
5.8
6.0
6.2
6.4
6.6
6.8
7.0
7.2
0.1
0.3
0.5
0.7
0.9
1.1
1.3
1.5

DNR12 8262


144 4-Nitroquinoline-1-oxide
Curve Type: Linear By-Response
Amt = 0.0836361 + Rsp/0.1126803
R^2: 0.9983658
JM6/546
12-9-11
Amount/ISTD Amount
Area/ISTD Area (x10^-1)
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2
2.4
2.6
2.8
3.0
3.2
3.4
3.6
3.8
4.0
4.2
4.4
4.6
4.8
5.0
5.2
5.4
5.6
5.8
6.0
6.2
6.4
6.6
6.8
7.0
0.00
0.40
0.80
1.20
1.60
2.00
2.40
2.80
3.20
3.60
4.00
4.40
4.80
5.20
5.60
6.00
6.40
6.80

DMR12 62263

Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem/HP10623.i/11dec08b.b/c10361a.d SSTD030
/chem/HP10623.i/11dec08b.b/c10362.d SSTD0.5
/chem/HP10623.i/11dec08b.b/c10363.d SSTD120
/chem/HP10623.i/11dec08b.b/c10364.d SSTD080
/chem/HP10623.i/11dec08b.b/c10365.d SSTD050
/chem/HP10623.i/11dec08b.b/c10366.d SSTD015
/chem/HP10623.i/11dec08b.b/c10367.d SSTD005
/chem/HP10623.i/11dec08b.b/c10368.d SSTD001

Area Summary

	File ID:									
Internal Standard Name	c10361a.d	c10362.d	c10363.d	c10364.d	c10365.d	c10366.d	c10367.d	c10368.d	Avg. Area	%RSD
1,4-Dichlorobenzene-d4	172951	163414	169589	185782	147446	145360	140501	126972	156502	13
Naphthalene-d8	793223	741431	779743	894494	681625	663219	634521	565916	719272	14
Acenaphthene-d10	530913	508391	525921	610348	462401	472604	436963	401823	493670	13
Phenanthrene-d10	1007468	1003736	1011364	1183780	867730	878347	846640	776133	946900	14
Pyrene-d10	1221606	1216356	1178313	1377863	1047345	1062517	1020887	959955	1135605	12
Perylene-d12	850759	858103	816358	966141	736466	760180	741393	671230	800079	12

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

	File ID:							
Internal Standard Name	c10361a.d	c10362.d	c10363.d	c10364.d	c10365.d	c10366.d	c10367.d	c10368.d
1,4-Dichlorobenzene-d4	5.380	5.380	5.380	5.380	5.380	5.380	5.380	5.380
Naphthalene-d8	6.518	6.518	6.517	6.518	6.517	6.517	6.517	6.518
Acenaphthene-d10	7.999	7.999	8.005	8.006	7.999	7.999	7.999	7.999
Phenanthrene-d10	9.229	9.229	9.235	9.235	9.229	9.229	9.229	9.229
Pyrene-d10	10.403	10.397	10.403	10.403	10.403	10.397	10.397	10.397
Perylene-d12	13.140	13.133	13.146	13.146	13.140	13.140	13.139	13.134

Comments:

12-9-2011

Report generated on 12/09/2011 at 09:13

DHR12 6284

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS LAB CODE: LANCAS INSTRUMENT: HP10623

Method: SW-846 8270C File ID: cl0371.d

ICV SAMPLE ID: ICV2691 BATCH: 11DEC088026 Sample Name: ICV050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
1,4-Dioxane	50.00	47.54	-5	30	YES
N-Nitrosodimethylamine	50.00	50.70	1	30	YES
Pyridine	50.00	44.56	-11	30	YES
2-Picoline	50.00	48.49	-3	30	YES
N-Nitrosomethylethylamine	50.00	47.83	-4	30	YES
Methyl methanesulfonate	50.00	47.44	-5	30	YES
2-Fluorophenol	50.00	46.70	-7	30	YES
N-Nitrosodiethylamine	50.00	49.98	0	30	YES
Ethyl methanesulfonate	50.00	49.43	-1	30	YES
Aniline	50.00	48.62	-3	30	YES
Phenol-d5	50.00	47.20	-6	30	YES
Phenol-d6	50.00	47.20	-6	30	YES
Phenol	50.00	48.76	-2	30	YES
bis(2-Chloroethyl)ether	50.00	46.03	-8	30	YES
2-Chlorophenol	50.00	48.73	-3	30	YES
1,3-Dichlorobenzene	50.00	48.75	-2	30	YES
1,4-Dichlorobenzene	50.00	49.75	-1	30	YES
Benzyl alcohol	50.00	50.40	1	30	YES
1,2-Dichlorobenzene	50.00	49.76	0	30	YES
2-Methylphenol	50.00	50.46	1	30	YES
2,2'-oxybis(1-Chloropropane	50.00	46.97	-6	30	YES
bis(2-Chloroisopropyl)ether	50.00	46.97	-6	30	YES
N-Nitrosopyrrolidine	50.00	50.82	2	30	YES
Acetophenone	50.00	49.69	-1	30	YES
N-Nitroso-di-n-propylamine	50.00	49.00	-2	30	YES
N-Nitrosomorpholine	50.00	52.69	5	30	YES
4-Methylphenol	50.00	49.91	0	30	YES
o-Toluidine	50.00	48.09	-4	30	YES
Hexachloroethane	50.00	47.53	-5	30	YES
Nitrobenzene-d5	50.00	46.81	-6	30	YES
Nitrobenzene	50.00	47.57	-5	30	YES
N-Nitrosopiperidine	50.00	51.33	3	30	YES
Isophorone	50.00	48.63	-3	30	YES
2-Nitrophenol	50.00	50.21	0	30	YES
2,4-Dimethylphenol	50.00	49.67	-1	30	YES
O,O,O-triethylphosphorothio	50.00	50.09	0	30	YES
bis(2-Chloroethoxy)methane	50.00	47.32	-5	30	YES

NC = Could not calculate

Comments:

12-07-2011

DHR12 8285

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS LAB CODE: LANCAS INSTRUMENT: HP10623

Method: SW-846 8270C File ID: cl0371.d

ICV SAMPLE ID: ICV2691 BATCH: 11DEC08BD26 Sample Name: ICV050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
Benzoic acid	50.00	29.88	-40	30	NO ✓
2,4-Dichlorophenol	50.00	50.83	2	30	YES
1,2,4-Trichlorobenzene	50.00	48.71	-3	30	YES
Naphthalene	50.00	48.04	-4	30	YES
4-Chloroaniline	50.00	51.69	3	30	YES
2,6-Dichlorophenol	50.00	51.63	3	30	YES
Hexachloropropene	50.00	51.22	2	30	YES
Hexachlorobutadiene	50.00	45.45	-9	30	YES
N-Nitrosodi-n-butylamine	50.00	50.45	1	30	YES
4-Chloro-3-methylphenol	50.00	49.74	-1	30	YES
Safrole	50.00	51.09	2	30	YES
2-Methylnaphthalene	50.00	49.32	-1	30	YES
1-Methylnaphthalene	50.00	48.44	-3	30	YES
Hexachlorocyclopentadiene	100.00	99.33	-1	30	YES
1,2,4,5-Tetrachlorobenzene	50.00	49.76	0	30	YES
cis-Isosafrole	5.50	5.80	5	30	YES
2,4,6-Trichlorophenol	50.00	53.35	7	30	YES
2,4,5-Trichlorophenol	50.00	50.32	1	30	YES
2-Fluorobiphenyl	50.00	46.79	-6	30	YES
trans-Isosafrole	44.50	46.16	4	30	YES
Isosafrole	50.00	51.87	4	30	YES
1,1'-Biphenyl	50.00	49.69	-1	30	YES
2-Chloronaphthalene	50.00	52.85	6	30	YES
Diphenyl ether	50.00	48.83	-2	30	YES
2-Nitroaniline	50.00	51.45	3	30	YES
1,4-Naphthoquinone	62.50	59.90	-4	30	YES
1,4-Dinitrobenzene	50.00	49.55	-1	30	YES
Dimethylphthalate	50.00	47.03	-6	30	YES
1,3-Dinitrobenzene	50.00	51.32	3	30	YES
2,6-Dinitrotoluene	50.00	49.63	-1	30	YES
Acenaphthylene	50.00	52.09	4	30	YES
3-Nitroaniline	50.00	49.65	-1	30	YES
Acenaphthene	50.00	47.73	-5	30	YES
2,4-Dinitrophenol	50.00	48.82	-2	30	YES
Pentachlorobenzene	50.00	50.94	2	30	YES
4-Nitrophenol	50.00	52.13	4	30	YES
Dibenzofuran	50.00	49.15	-2	30	YES

NC = Could not calculate

Comments: ✓ = meets CCV criteria

GB 1/4/12

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS | LAB CODE: LANCAS | INSTRUMENT: HP10623

Method: SW-846 8270C | File ID: c10371.d

ICV SAMPLE ID: ICV2691 | BATCH: 11DEC08B026 | Sample Name: ICV050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
2,4-Dinitrotoluene	50.00	48.68	-3	30	YES
1-Naphthylamine	100.00	103.65	4	30	YES
2,3,4,6-Tetrachlorophenol	50.00	52.16	4	30	YES
2-Naphthylamine	100.00	101.57	2	30	YES
Diethylphthalate	50.00	48.16	-4	30	YES
Thionazin	50.00	51.79	4	30	YES
Fluorene	50.00	49.08	-2	30	YES
4-Chlorophenyl-phenylether	50.00	48.00	-4	30	YES
5-Nitro-o-toluidine	50.00	53.74	7	30	YES
4-Nitroaniline	50.00	48.94	-2	30	YES
4,6-Dinitro-2-methylphenol	50.00	53.36	7	30	YES
N-Nitrosodiphenylamine	50.00	51.02	2	30	YES
1,2-Diphenylhydrazine	50.00	50.06	0	30	YES
2,4,6-Tribromophenol	50.00	46.30	-7	30	YES
Tetraethyldithiopyrophospha	50.00	50.80	2	30	YES
1,3,5-Trinitrobenzene	50.00	49.44	-1	30	YES
Diallate (peak 1)	37.50	38.96	4	30	YES
Phorate	50.00	53.01	6	30	YES
Phenacetin	50.00	52.84	6	30	YES
4-Bromophenyl-phenylether	50.00	46.34	-7	30	YES
Diallate (peak 2)	12.50	13.05	4	30	YES
Hexachlorobenzene	50.00	49.19	-2	30	YES
Dimethoate	50.00	47.19	-6	30	YES
Diallate TRANS/CIS	50.00	51.98	4	30	YES
Pentachlorophenol	50.00	51.41	3	30	YES
Pentachloronitrobenzene	50.00	52.94	6	30	YES
4-Aminobiphenyl	50.00	57.99	16	30	YES
Pronamide	50.00	52.30	5	30	YES
Dinoseb	50.00	51.31	3	30	YES
Phenanthrene	50.00	48.07	-4	30	YES
Anthracene	50.00	48.74	-3	30	YES
Carbazole	50.00	51.24	2	30	YES
Methyl parathion	50.00	49.65	-1	30	YES
Di-n-butylphthalate	50.00	49.59	-1	30	YES
Parathion	50.00	51.59	3	30	YES
4-Nitroquinoline-1-oxide	550.00	785.67	43	30	NO ✓
Isodrin	50.00	50.62	1	30	YES

NC = Could not calculate

Comments: ✓ = meet CCV criteria

GB 1/4/12

DHR12 8257

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS LAB CODE: LANCAS INSTRUMENT: HP10623

Method: SW-846 8270C File ID: cl0371.d

ICV SAMPLE ID: ICV2691 BATCH: 11DEC088026 Sample Name: ICV050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
Fluoranthene	50.00	51.23	2	30	YES
Benzidine	250.00	249.87	0	30	YES
Pyrene	50.00	48.69	-3	30	YES
Terphenyl-d14	50.00	46.91	-6	30	YES
p-Dimethylaminoazobenzene	50.00	55.43	11	30	YES
Chlorobenzilate	50.00	55.22	10	30	YES
3,3'-Dimethylbenzidine	50.00	44.41	-11	30	YES
Butylbenzylphthalate	50.00	48.88	-2	30	YES
2-Acetylaminofluorene	50.00	54.23	8	30	YES
3,3'-Dichlorobenzidine	50.00	46.00	-8	30	YES
4,4'-Methylenebis(2-Chloroa	50.00	44.94	-10	30	YES
Benzo(a)anthracene	50.00	48.67	-3	30	YES
Chrysene	50.00	49.12	-2	30	YES
bis(2-Ethylhexyl)phthalate	50.00	48.80	-2	30	YES
Di-n-octylphthalate	50.00	50.32	1	30	YES
7,12-Dimethylbenz[a]anthrac	50.00	53.18	6	30	YES
Benzo(b)fluoranthene	50.00	49.74	-1	30	YES
Benzo(k)fluoranthene	50.00	48.96	-2	30	YES
Benzo(a)pyrene	50.00	50.15	0	30	YES
3-Methylcholanthrene	50.00	52.06	4	30	YES
Indeno(1,2,3-cd)pyrene	50.00	48.83	-2	30	YES
Dibenz(a,h)anthracene	50.00	49.65	-1	30	YES
Benzo(g,h,i)perylene	50.00	48.10	-4	30	YES
6-Methylchrysene	50.00	48.90	-2	30	YES
Dibenz(a,h)acridine	50.00	46.86	-6	30	YES
Dibenz(a,j)acridine	50.00	51.98	4	30	YES
Quinoline	50.00	47.45	-5	30	YES
Indene	50.00	45.37	-9	30	YES

NC = Could not calculate

Comments: _____

DMR12 0288

7B

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP10623 Calibration Date: 12/21/11 Time: 03:30

Lab File ID: cl0921.d Init. Calib. Date(s): 12/08/11 12/08/11

Init. Calib. Times(s): 19:04 21:55

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

	COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
	1,4-Dioxane	0.669	0.656	29.410	30.0	-2
	N-Nitrosodimethylamine	1.199	1.175	29.380	30.0	-2
	Pyridine	1.988	1.786	26.950	30.0	-10
	2-Picoline	2.154	2.090	29.110	30.0	-3
	N-Nitrosomethylethylamine	1.061	1.032	29.190	30.0	-3
	Methyl methanesulfonate	1.183	1.157	29.350	30.0	-2
	N-Nitrosodiethylamine	0.995	0.955	28.800	30.0	-4
	Ethyl methanesulfonate	0.956	0.881	27.640	30.0	-8
	Aniline	3.376	3.135	27.860	30.0	-7
*	Phenol	2.959	2.956	29.970	30.0	0*
	bis(2-Chloroethyl)ether	2.085	2.067	29.750	30.0	-1
	2-Chlorophenol	1.530	1.520	29.800	30.0	-1
	1,3-Dichlorobenzene	1.559	1.552	29.870	30.0	0
*	1,4-Dichlorobenzene	1.595	1.592	29.930	30.0	0*
	Benzyl alcohol	1.327	1.114	25.180	30.0	-16
	1,2-Dichlorobenzene	1.512	1.470	29.160	30.0	-3
	2-Methylphenol	1.791	1.778	29.790	30.0	-1
	2,2'-oxybis(1-Chloropropane)	3.132	2.983	28.570	30.0	-5
	bis(2-Chloroisopropyl)ether	3.132	2.983	28.570	30.0	-5
	N-Nitrosopyrrolidine	1.193	1.134	28.510	30.0	-5
	Acetophenone	2.828	2.784	29.540	30.0	-2
#	N-Nitroso-di-n-propylamine	1.845	1.761	28.630	30.0	-5#
	N-Nitrosomorpholine	1.440	1.426	29.700	30.0	-1
	4-Methylphenol	2.199	2.110	28.790	30.0	-4
	o-Toluidine	3.293	3.086	28.120	30.0	-6
	Hexachloroethane	0.660	0.677	30.760	30.0	3
	Nitrobenzene	0.541	0.556	30.800	30.0	3
	N-Nitrosopiperidine	0.225	0.218	29.060	30.0	-3
	Isophorone	1.043	1.043	30.020	30.0	0
*	2-Nitrophenol	0.197	0.195	29.630	30.0	-1*
	2,4-Dimethylphenol	0.473	0.480	30.430	30.0	1
	O,O,O-triethylphosphorothioate	0.193	0.187	29.030	30.0	-3
	bis(2-Chloroethoxy)methane	0.586	0.569	29.120	30.0	-3
	Benzoic acid	0.377	0.351	37.300	40.0	-7
*	2,4-Dichlorophenol	0.300	0.300	30.050	30.0	0*
	1,2,4-Trichlorobenzene	0.323	0.325	30.140	30.0	0

BGM 12-24-11

BHR12 8289

FORM VII SV-1

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP10623 Calibration Date: 12/21/11 Time: 03:30

Lab File ID: cl0921.d Init. Calib. Date(s): 12/08/11 12/08/11

Init. Calib. Times(s): 19:04 21:55

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

	COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
	Naphthalene	1.099	1.104	30.140	30.0	0
	4-Chloroaniline	0.470	0.441	28.140	30.0	-6
	2,6-Dichlorophenol	0.301	0.298	29.790	30.0	-1
	Hexachloropropene	0.207	0.218	31.670	30.0	6
*	Hexachlorobutadiene	0.175	0.173	29.640	30.0	-1*
	Caprolactam	0.178	0.179	30.150	30.0	0
	N-Nitrosodi-n-butylamine	0.428	0.371	27.450	30.0	-8
*	4-Chloro-3-methylphenol	0.453	0.447	29.620	30.0	-1*
	Safrole	0.304	0.296	29.190	30.0	-3
	2-Methylnaphthalene	0.767	0.756	29.560	30.0	-1
	1-Methylnaphthalene	0.732	0.715	29.310	30.0	-2
#	Hexachlorocyclopentadiene	0.238	0.219	26.810	30.0	-11#
	1,2,4,5-Tetrachlorobenzene	0.476	0.489	30.840	30.0	3
	cis-Isosafrole	0.716	0.721	3.320	3.3	1
*	2,4,6-Trichlorophenol	0.344	0.344	29.990	30.0	0*
	2,4,5-Trichlorophenol	0.379	0.385	30.450	30.0	1
	trans-Isosafrole	0.532	0.524	26.290	26.7	-2
	Isosafrole	0.474	0.466	29.540	30.0	-2
	1,1'-Biphenyl	1.451	1.472	30.420	30.0	1
	2-Chloronaphthalene	1.236	1.202	29.170	30.0	-3
	1-Chloronaphthalene	1.105	1.175	31.900	30.0	6
	Diphenyl ether	0.792	0.789	29.910	30.0	0
	2-Nitroaniline	0.393	0.407	31.060	30.0	4
	1,4-Naphthoquinone	0.486	0.487	30.100	30.0	0
	1,4-Dinitrobenzene	0.218	0.218	30.020	30.0	0
	Dimethylphthalate	1.374	1.361	29.720	30.0	-1
	1,3-Dinitrobenzene	0.259	0.258	29.930	30.0	0
	2,6-Dinitrotoluene	0.309	0.321	31.130	30.0	4
	Acenaphthylene	1.703	1.736	30.570	30.0	2
	3-Nitroaniline	0.352	0.357	30.420	30.0	1
*	Acenaphthene	1.206	1.185	29.480	30.0	-2*
#	2,4-Dinitrophenol	0.178	0.193	42.030	40.0	5#
	Pentachlorobenzene	0.444	0.426	28.780	30.0	-4
#	4-Nitrophenol	0.247	0.272	33.140	30.0	10#
	Dibenzofuran	1.713	1.690	29.590	30.0	-1
	2,4-Dinitrotoluene	0.435	0.437	30.100	30.0	0

DHR12 8216

FORM VII SV-1

7C cont

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP10623 Calibration Date: 12/21/11 Time: 03:30

Lab File ID: cl0921.d Init. Calib. Date(s): 12/08/11 12/08/11

Init. Calib. Times(s): 19:04 21:55

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

	COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
	1-Naphthylamine	1.271	1.250	29.510	30.0	-2
	2,3,4,6-Tetrachlorophenol	0.306	0.301	29.500	30.0	-2
	2-Naphthylamine	1.289	1.273	29.630	30.0	-1
	Diethylphthalate	1.426	1.461	30.730	30.0	2
	Thionazin	0.279	0.286	30.710	30.0	2
	Fluorene	1.427	1.434	30.130	30.0	0
	4-Chlorophenyl-phenylether	0.700	0.700	29.990	30.0	0
	5-Nitro-o-toluidine	0.430	0.453	31.600	30.0	5
	4-Nitroaniline	0.384	0.376	29.330	30.0	-2
	4,6-Dinitro-2-methylphenol	0.134	0.145	32.550	30.0	9
*	N-Nitrosodiphenylamine (1)	0.644	0.663	30.890	30.0	3*
	1,2-Diphenylhydrazine	1.018	1.097	32.310	30.0	8
	Tetraethyldithiopyrophosphate	0.147	0.159	32.380	30.0	8
	1,3,5-Trinitrobenzene	0.091	0.096	29.900	30.0	0
	Diallate (peak 1)	0.484	0.506	23.520	22.5	5
	Phorate	0.759	0.950	33.280	30.0	11
	Phenacetin	0.463	0.504	32.660	30.0	9
	4-Bromophenyl-phenylether	0.195	0.193	29.660	30.0	-1
	Diallate (peak 2)	0.298	0.307	7.730	7.5	3
	Hexachlorobenzene	0.177	0.179	30.330	30.0	1
	Dimethoate	0.405	0.450	33.330	30.0	11
	Diallate TRANS/CIS	0.438	0.456	31.280	30.0	4
*	Pentachlorophenol	0.102	0.113	31.460	30.0	5*
	Pentachloronitrobenzene	0.095	0.103	32.770	30.0	9
	4-Aminobiphenyl	0.773	0.753	29.200	30.0	-3
	Pronamide	0.348	0.375	32.340	30.0	8
	Dinoseb	0.195	0.210	30.480	30.0	2
	Phenanthrene	1.099	1.119	30.550	30.0	2
	Anthracene	1.121	1.165	31.160	30.0	4
	Carbazole	1.083	1.142	31.640	30.0	5
	Methyl parathion	0.287	0.317	33.240	30.0	11
	Di-n-butylphthalate	1.322	1.447	32.840	30.0	9
	Parathion	0.178	0.197	33.130	30.0	10
	4-Nitroquinoline-1-oxide	0.100	0.110	30.860	30.0	3
	Isodrin	0.128	0.131	30.690	30.0	2
*	Fluoranthene	1.205	1.297	32.310	30.0	8*

(1) Cannot be Separated from Diphenylamine

DHR12 0211

7C cont

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP10623 Calibration Date: 12/21/11 Time: 03:30

Lab File ID: cl0921.d Init. Calib. Date(s): 12/08/11 12/08/11

Init. Calib. Times(s): 19:04 21:55

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

			ACTUAL	TRUE	%
COMPOUND	RRF	RRF30	CONC.	CONC.	DRIFT
Benzidine	0.666	0.696	94.060	90.0	5
Pyrene	1.134	1.087	28.750	30.0	-4
p-Dimethylaminoazobenzene	0.218	0.224	30.820	30.0	3
Chlorobenzilate	0.319	0.340	31.960	30.0	7
3,3'-Dimethylbenzidine	0.646	0.647	30.050	30.0	0
Butylbenzylphthalate	0.510	0.516	30.360	30.0	1
2-Acetylaminofluorene	0.431	0.460	31.980	30.0	7
3,3'-Dichlorobenzidine	0.362	0.370	30.650	30.0	2
4,4'-Methylenebis(2-Chloroanil	0.192	0.196	30.500	30.0	2
Benzo(a)anthracene	0.975	0.983	30.240	30.0	1
Chrysene	0.994	0.970	29.260	30.0	-2
bis(2-Ethylhexyl)phthalate	0.724	0.730	30.250	30.0	1
6-Methylchrysene	0.688	0.691	30.150	30.0	1
Dibenz(a,h)acridine	0.842	0.873	31.090	30.0	4
* Di-n-octylphthalate	1.632	1.723	31.670	30.0	6*
Dibenz(a,j)acridine	0.939	1.001	31.990	30.0	7
7,12-Dimethylbenz[a]anthracene	0.595	0.632	31.870	30.0	6
Quinoline	0.790	0.777	29.520	30.0	-2
Benzo(b)fluoranthene	1.304	1.454	33.440	30.0	11
Benzo(k)fluoranthene	1.351	1.383	30.700	30.0	2
* Benzo(a)pyrene	1.178	1.264	32.180	30.0	7*
3-Methylcholanthrene	0.600	0.641	32.060	30.0	7
NDPA as diphenylamine	0.653	0.663	30.490	30.0	2
Indeno(1,2,3-cd)pyrene	1.212	1.258	31.140	30.0	4
Dibenz(a,h)anthracene	0.994	1.091	32.910	30.0	10
Benzo(g,h,i)perylene	1.009	1.131	33.620	30.0	12
Indene	2.988	2.503	25.130	30.0	-16
2-Fluorophenol	1.568	1.587	30.370	30.0	1
Phenol-d5	2.512	2.443	29.180	30.0	-3
Phenol-d6	2.512	2.443	29.180	30.0	-3
Nitrobenzene-d5	0.520	0.537	30.990	30.0	3
2-Fluorobiphenyl	1.261	1.242	29.540	30.0	-2
2,4,6-Tribromophenol	0.137	0.136	29.760	30.0	-1
Terphenyl-d14	0.726	0.693	28.640	30.0	-5
			Average %Drift:		4

DHR12 0212

FORM VII SV-1

Continuing Calibration
Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem/HP10623.i/11dec08b.b/cl0361a.d
/chem/HP10623.i/11dec08b.b/cl0362.d
/chem/HP10623.i/11dec08b.b/cl0363.d
/chem/HP10623.i/11dec08b.b/cl0364.d
/chem/HP10623.i/11dec08b.b/cl0365.d
/chem/HP10623.i/11dec08b.b/cl0366.d **
/chem/HP10623.i/11dec08b.b/cl0367.d
/chem/HP10623.i/11dec08b.b/cl0368.d

** indicates the Mid Level Calibration Standard.

Mid Level Calibration Standard is used for comparison.

Current Continuing Calibration Standard:

/chem/HP10623.i/11dec21.b/cl0921.d

Area Summary

File ID:

Internal Standard Name	cl0921.d	ICAL Area	Low Limit	High Limit	In Spec
1,4-Dichlorobenzene-d4	181500	145360	72680	290720	Yes
Naphthalene-d8	790610	663219	331610	1326438	Yes
Acenaphthene-d10	520195	472604	236302	945208	Yes
Phenanthrene-d10	954617	878347	439174	1756694	Yes
Pyrene-d10	1220282	1062517	531258	2125034	Yes
Perylene-d12	868826	760180	380090	1520360	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

RT Summary

File ID:

Internal Standard Name	cl0921.d	ICAL RT	In Spec
1,4-Dichlorobenzene-d4	4.949	5.380	Yes
Naphthalene-d8	6.105	6.517	Yes
Acenaphthene-d10	7.581	7.999	Yes
Phenanthrene-d10	8.804	9.229	Yes
Pyrene-d10	9.960	10.397	Yes
Perylene-d12	12.451	13.140	No → Due to column matrix BL 12-21-04

A "No" indicates the retention time is greater than 30 seconds from the RT of the referenced standard.

Comments: _____ BHN12 8213

_____

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: LANCASTER LABS Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID (Standard): cl0921.d Date Analyzed: 12/21/11

Instrument ID: HP10623 Time Analyzed: 03:30

		IS1(DCB)			IS2(NPT)			IS3(ANT)		
		AREA	#	RT	#	AREA	#	RT	#	AREA	#	RT	#
	12 HOUR STD	181500		4.949		790610		6.105		520195		7.581	
	UPPER LIMIT	363000		5.449		1581220		6.605		1040390		8.081	
	LOWER LIMIT	90750		4.449		395305		5.605		260098		7.081	
	LLI SAMPLE NO.												
01	SBLKLC353	150977		4.949		618665		6.099		387768		7.581	
02	353LCLCS	147598		4.956		668023		6.105		425582		7.581	
03	6502912	164320		4.949		718120		6.099		452537		7.581	
04	6501839	146868		4.949		657006		6.099		441163		7.581	
05	6501840MS	144746		4.949		667802		6.099		425556		7.581	
06	6501841MSD	147530		4.949		672007		6.099		444960		7.581	
07	6497540	158970		4.949		730437		6.099		471418		7.581	
08	6497541	138254		4.949		623324		6.099		384243		7.581	
09	6500558	142613		4.949		626000		6.099		398787		7.581	
10	6501843	160149		4.949		741437		6.099		486450		7.581	
11	6501845	165458		4.949		764790		6.099		505536		7.581	
12	6501846	138960		4.949		643975		6.099		425801		7.581	
13	6501848	141008		4.949		646458		6.099		433045		7.581	
14	6501849	144037		4.949		677984		6.099		460778		7.581	
15	6501850	155494		4.955		716052		6.099		477260		7.581	
16	6503455	143344		4.955		620270		6.105		398529		7.581	
17	6503456	143756		4.955		631833		6.105		400134		7.581	

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT (advisory) = +100% of internal standard area
AREA LOWER LIMIT (advisory) = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard are and RT values with an asterisk
* Values outside of QC limits.

BHR12 0214

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: LANCASTER LABS Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID (Standard): cl0921.d Date Analyzed: 12/21/11

Instrument ID: HP10623 Time Analyzed: 03:30

		IS4(PHN)			IS5(PYR)			IS6(PRY)		
		AREA	#	RT	#	AREA	#	RT	#	AREA	#	RT	#
	12 HOUR STD	954617		8.804		1220282		9.960		868826		12.451	
	UPPER LIMIT	1909234		9.304		2440564		10.460		1737652		12.951	
	LOWER LIMIT	477309		8.304		610141		9.460		434413		11.951	
	LLI SAMPLE NO.												
01	SBLKLC353	735444		8.798		849771		9.954		597934		12.445	
02	353LCLCS	796230		8.798		936276		9.961		603626		12.451	
03	6502912	855053		8.798		1029531		9.954		737194		12.444	
04	6501839	825414		8.798		1016600		9.954		735588		12.445	
05	6501840MS	805749		8.798		989140		9.960		671378		12.451	
06	6501841MSD	862812		8.798		1020755		9.960		727617		12.444	
07	6497540	857110		8.798		1008495		9.961		696303		12.445	
08	6497541	686395		8.798		745154		9.960		491729		12.444	
09	6500558	692336		8.798		764718		9.960		499748		12.444	
10	6501843	886336		8.798		1050395		9.961		712035		12.451	
11	6501845	933577		8.798		1096646		9.961		737679		12.451	
12	6501846	776487		8.799		926049		9.961		619180		12.451	
13	6501848	801485		8.798		966553		9.960		635680		12.451	
14	6501849	855930		8.798		1036504		9.961		697247		12.451	
15	6501850	859860		8.798		1022036		9.960		681366		12.451	
16	6503455	721322		8.804		799054		9.960		571140		12.457	
17	6503456	691393		8.804		754889		9.960		526788		12.457	

IS4 (PHN) = Phenanthrene-d10
IS5 (PYR) = Pyrene-d10
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT (advisory) = +100% of internal standard area
AREA LOWER LIMIT (advisory) = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard are and RT values with an asterisk
* Values outside of QC limits.

DHH12 0215

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: LANCASTER LABS Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID (Standard): cl0921.d Date Analyzed: 12/21/11

Instrument ID: HP10623 Time Analyzed: 03:30

		IS1(DCB)			IS2(NPT)			IS3(ANT)		
		AREA	#	RT	#	AREA	#	RT	#	AREA	#	RT	#
	12 HOUR STD	181500		4.949		790610		6.105		520195		7.581	
	UPPER LIMIT	363000		5.449		1581220		6.605		1040390		8.081	
	LOWER LIMIT	90750		4.449		395305		5.605		260098		7.081	
	LLI SAMPLE NO.												
18	6503457	147365		4.955		646662		6.105		396296		7.581	
19	6504018	140316		4.956		625416		6.105		401540		7.581	
20	6504019	143741		4.955		633702		6.105		423364		7.587	
21	6504020	159380		4.955		679601		6.105		554524		7.587	

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT (advisory) = +100% of internal standard area
AREA LOWER LIMIT (advisory) = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard are and RT values with an asterisk
* Values outside of QC limits.

DHR12 0216

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: LANCASTER LABS Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID (Standard): cl0921.d Date Analyzed: 12/21/11

Instrument ID: HP10623 Time Analyzed: 03:30

		IS4(PHN)			IS5(PYR)			IS6(PRY)	
		AREA	#	RT	#	AREA	#	RT	#
	12 HOUR STD	954617		8.804		1220282		9.960		868826		12.451	
	UPPER LIMIT	1909234		9.304		2440564		10.460		1737652		12.951	
	LOWER LIMIT	477309		8.304		610141		9.460		434413		11.951	
	LLI SAMPLE NO.												
18	6503457	668587		8.804		738577		9.960		518661		12.457	
19	6504018	689738		8.805		753048		9.961		517540		12.457	
20	6504019	831768		8.810		847563		9.973		577425		12.457	
21	6504020	1257163		8.829		1176026		9.997		703604		12.481	

IS4 (PHN) = Phenanthrene-d10
IS5 (PYR) = Pyrene-d10
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT (advisory) = +100% of internal standard area
AREA LOWER LIMIT (advisory) = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard are and RT values with an asterisk
* Values outside of QC limits.

DHR12 0217

Lancaster Laboratories
Semi-Volatiles

Runlog for Hewlett Packard GC/MS System HP10623 **HP #03**

*** Shift #1 Analyst: JMG *** Shift #2 Analyst: HB

Comment Code:

R = Reinjection necessary		X =	Sample sent to be reextracted
S = Surrogate problem		I =	Internal Standard problem
NU = Not used		F =	Further dilution required
MR = Meets requirements		IUO =	Internal use only
Cz = Confirms z, (z = I or X)		† =	Injected outside valid tune period

Other problems or comments are as follows:

Data Directory Path is - C:\msdchem\1\DATA\11dec08b\

ALS Btl #	Laboratory File ID	Client ID	Lab Sample ID	Date Injected	Time Injected	Case and SDG Number or Extraction Batch Number	Dilution Factor	Comments
1	c10360.D	50 NG/UL	DFTPP3131	08 Dec 2011	18:10			nu
1	c10360Z.D	50 NG/UL	DFTPP3131	08 Dec 2011	18:25			mr
2	c10361.D	SSTD030	STD3321	08 Dec 2011	18:39			nu
2	c10361A.D	SSTD030	STD3321	08 Dec 2011	19:04			mr
11	c10362.D	SSTD0.5	STD3321	08 Dec 2011	19:28			mr
12	c10363.D	SSTD120	STD3321	08 Dec 2011	19:53			mr
13	c10364.D	SSTD060	STD3321	08 Dec 2011	20:17			mr
14	c10365.D	SSTD050	STD3321	08 Dec 2011	20:42			mr
15	c10366.D	SSTD015	STD3321	08 Dec 2011	21:06			mr
16	c10367.D	SSTD005	STD3321	08 Dec 2011	21:31			mr
17	c10368.D	SSTD001	STD3321	08 Dec 2011	21:55			mr
11	c10369.D	MDL0.5	MDL3321	08 Dec 2011	22:19			mr
18	c10370.D	MDL0.1	MDL3321	08 Dec 2011	22:44			mr
19	c10371.D	ICV050	ICV2691	08 Dec 2011	23:08			mr
3	c10372.D	SSTD050	BAS3151	08 Dec 2011	23:33			mr
4	c10373.D	SSTD120	BAS3151	08 Dec 2011	23:57			mr
5	c10374.D	SSTD080	BAS3151	09 Dec 2011	00:21			mr
6	c10375.D	SSTD030	BAS3151	09 Dec 2011	00:46			mr
7	c10376.D	SSTD015	BAS3151	09 Dec 2011	01:10			mr
8	c10377.D	SSTD005	BAS3151	09 Dec 2011	01:34			mr
9	c10378.D	MDL001	BASMDL3151	09 Dec 2011	01:58			mr
10	c10379.D	BASICV050	BAS2911	09 Dec 2011	02:22			mr

DHR12 8218

Lancaster Laboratories

Semi-Volatiles

Runlog for Hewlett Packard GC/MS System HP10623 **HP #03**

*** Shift #1 Analyst: bkg,msw *** Shift #2 Analyst: hb

Comment Code:

R = Reinjection necessary	X = Sample sent to be reextracted
S = Surrogate problem	I = Internal Standard problem
NU = Not used	F = Further dilution required
MR = Meets requirements	IUO = Internal use only
Cz = Confirms z, (z = I or X)	T = Injected outside valid tune period

Other problems or comments are as follows:

Data Directory Path is - C:\msdchem\1\DATA\11dec21\

ALS Btl #	Laboratory File ID	Client ID	Lab Sample ID	Date injected	Time injected	Case and SDG Number or Extraction Batch Number	Dilution Factor	Comments
1	c10920.D	50 NG/UL	DFTPP3131	21 Dec 2011	03:16			mr
2	c10921.D	SSTD030	STD3461	21 Dec 2011	03:30			mr
3	c10922.D	SSTD050	BAS3151	21 Dec 2011	03:55			mr
4	c10923.D	SSTD050	STDBB3461	21 Dec 2011	04:19			mr
11	c10924.D	SBLKLC3533	SBLKLC353	21 Dec 2011	04:43	11353SLC		mr
12	c10925.D	353LCLCS3	353LCLCS	21 Dec 2011	05:08	11353SLC		mr
27	c10940.D	XXXXX	6502912	21 Dec 2011	05:32	11353SLC	10	mr
13	c10926.D	XXXXX	6501839	21 Dec 2011	05:56	11353SLC	10	mr
14	c10927.D	XXXXXMS	6501840	21 Dec 2011	06:20	11353SLC	10	mr
15	c10928.D	XXXXXMSD	6501841	21 Dec 2011	06:44	11353SLC	10	mr
16	c10929.D	XXXXX	6497540	21 Dec 2011	07:09	11353SLC	10	mr
17	c10930.D	XXXXX	6497541	21 Dec 2011	07:33	11353SLC		mr
18	c10931.D	XXXXX	6500558	21 Dec 2011	07:57	11353SLC		mr
19	c10932.D	XXXXX	6501843	21 Dec 2011	08:21	11353SLC	10	mr
20	c10933.D	XXXXX	6501844	21 Dec 2011	08:45	11353SLC	10	nu
21	c10934.D	XXXXX	6501845	21 Dec 2011	09:09	11353SLC	10	mr
22	c10935.D	XXXXX	6501846	21 Dec 2011	09:33	11353SLC	10	mr
23	c10936.D	XXXXX	6501847	21 Dec 2011	09:58	11353SLC	10	nu
24	c10937.D	XXXXX	6501848	21 Dec 2011	10:22	11353SLC	10	mr
25	c10938.D	XXXXX	6501849	21 Dec 2011	10:46	11353SLC	10	mr
26	c10939.D	XXXXX	6501850	21 Dec 2011	11:10	11353SLC	10	mr
28	c10941.D	XXXXX	6503370	21 Dec 2011	11:35	11353SLC	10	nu
29	c10942.D	XXXXX	6503455	21 Dec 2011	11:59	11353SLC		mr
30	c10943.D	XXXXX	6503456	21 Dec 2011	12:24	11353SLC		mr
31	c10944.D	XXXXX	6503457	21 Dec 2011	12:48	11353SLC		mr
32	c10945.D	XXXXX	6504018	21 Dec 2011	13:12	11353SLC		mr
33	c10946.D	XXXXX	6504019	21 Dec 2011	13:36	11353SLC		mr
34	c10947.D	XXXXX	6504020	21 Dec 2011	14:01	11353SLC		mr

DHR12 8219

Extraction/Distillation/Digestion Logs

Organic Extraction Batchlog Assigned to: 1709 Olivia Santiago

Reviewed by: BGM 12-21-11 Start Date: 12-20-11 Start time: 13:00

11353SLC026

Tech 1: 0151705 Tech 2:

Dept: 26 Prep Analysis: 10809 BNA Soil Microwave TCL 8270 (microwave)

QC	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (mL)	pH	pH	BC	Comments
6501840MS	T1--A	30	SS1133326A	1.0	MS1134226A	1.0	1.0	Z	Z	34A	sticky mud
6501841MSD	T1--A	30	SS1133326A	1.0	MS1134226A	1.0	1.0	Z	Z	34A	↓
BLANKA	SBLKSC353	30	SS1133326A	1.0			1.0	Z	Z	NA	Na2SO4
LCSA	LCSSC353	30	SS1133326A	1.0	MS1134226A	1.0	1.0	Z	Z	↓	↓

Solvent Used	Lot No.
1:1 Methylene Chloride/Acetone	185112911A
Methylene Chloride	116154
Sodium Sulfate	113537A

MeCl2 lot #115543 used for dilutions HB/1206 12/21/11

* limited sample volume.

Spike Solutions: Witness: NA

MS1134226A LCS SPIKE MIX

SS1133326A BNA SURROGATE STANDARD

	Sample #	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	FV (mL)	pH	pH	BC	Comments	Analyses	Due Date	Prio
1	6497540 R	07002	30	SS1133326A	1.0	1.0	Z	Z	34A	brown soil	10727	12/23/2011	N
2	6497541 R	07305	30	SS1133326A	1.0	1.0	Z	Z	34A	brown clay	10727	12/23/2011	N
3	6500558	S1723	30	SS1133326A	1.0	1.0	Z	Z	34A	moist, gritty w/ stones	10727	12/29/2011	N
4	6501839BKG	T1--A	30	SS1133326A	1.0	1.0	Z	Z	34A	moist, sticky mud	10727	12/29/2011	N
5	6501843	T1--B	30	SS1133326A	1.0	1.0	Z	Z	34A	↓	10727	12/29/2011	N
6	6501844	T1-BD	30	SS1133326A	1.0	1.0	Z	Z	34A	wet mud	10727	12/29/2011	N
7	6501845	T1--F	30	SS1133326A	1.0	1.0	Z	Z	34A	↓	10727	12/29/2011	N
8	6501846	T1--G	30	SS1133326A	1.0	1.0	Z	Z	34A	↓	10727	12/29/2011	N
9	6501847	T3--B	30	SS1133326A	1.0	1.0	Z	Z	34A	↓	10727	12/29/2011	N
10	6501848	T3--F	30	SS1133326A	1.0	1.0	Z	Z	34A	sticky, brown soil	10727	12/29/2011	N
11	6501849	T12-A	30.2	SS1133326A	1.0	1.0	Z	Z	34A	↓	10727	12/29/2011	N
12	6501850	T12-B	30	SS1133326A	1.0	1.0	Z	Z	34A	wet mud	10727	12/29/2011	N
13	6502912 *	NWSTN	20	SS1133326A	1.0	1.0	Z	Z	34A	↓	10727	12/20/2011	S
14	6503370	AR799	30	SS1133326A	1.0	1.0	Z	Z	20B	clumpy clay	10727	01/03/2012	S
15	6503455	--S1-	30	SS1133326A	1.0	1.0	Z	Z	34A	sticky clay	10727	01/03/2012	N
16	6503456	--S2-	30	SS1133326A	1.0	1.0	Z	Z	34A	brown clay	10727	01/03/2012	N
17	6503457	--S3-	30	SS1133326A	1.0	1.0	Z	Z	34A	↓	10727	01/03/2012	N
18	6504018	RUBBL	30	SS1133326A	1.0	1.0	Z	Z	36A	loose brown soil	10727	01/03/2012	N
19	6504019	RUBBR	30	SS1133326A	1.0	1.0	Z	Z	36A	↓	10727	01/03/2012	N
20	6504020	RUBBW	30	SS1133326A	1.0	1.0	Z	Z	36A	↓	10727	01/03/2012	N

Rack ID:		Work Station	microwave
Internal Standard	LB87506	Balance #	10879

DF = Dilution Factor FV = Final Volume

S-bath ID 2	95 C	S-bath ID — C	N-Evap — C	M-vap — C	11353SLC026

Documented temps are NIST corrected.

MeCl2 Lot #115543

Metals in Liquid Data

Case Narrative
Conformance/Non-Conformance

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CASE NARRATIVE FOR INORGANICS

Laboratory Name: Lancaster Laboratories

SDG Number: DHR12

Date Received: 12/17/2011

Dilutions:

Refer to the analysis run logs for samples requiring dilutions.

Quality Assurance/Quality Control:

Site specific matrix QC samples were not submitted for this SDG. The batch matrix QC was performed on samples from another project. Therefore the matrix effects would not be relevant and matrix QC is not provided in the data package. Laboratory spike data (LCS) are provided.

Method defined actions are taken for any failed matrix QC.

Explanatory Notes:

The instrument detection limits (IDLs) are used for determining the U flags on the initial and continuing calibration blanks. The highest IDL is selected when multiple instruments are used for an analysis. The method detection limits (MDLs) are used for determining all other U flags.

Narrative Reviewed and Approved 01-19-12 by
(Date)

Betty L. Umble
Specialist

Sample Data

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: DHR12
Matrix: WATER Level (low/med): LOW

Lab Sample ID: 6503454
Concentration Units: UG/L

% Solids: 0.0
Date Received: 12/17/2011

CAS No.	Analyte	Concentration	C	Q	M
7440-47-3	Chromium	14.6	B		P
7440-50-8	Copper	18.3			P
7439-92-1	Lead	2.6	B		P
7440-02-0	Nickel	11.2			P
7440-66-6	Zinc	234			P

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence
NR = Not Required

CONCENTRATION QUALIFIERS:
U = Below MDL,
B = Below LOQ

Quality Control and Calibration Summary Forms

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QUALITY CONTROL REFERENCE LIST

SDG No.: DHR12
Matrix: WATER

Analyte	Batch ID	Lab Sample ID
Chromium	P35516C	6503454
Copper		P35516CB
Lead		P35516CQ
Nickel		
Zinc		

LEGEND:

BKG = Background	B = Blank
DUP = Duplicate	Q = Laboratory Control Sample
MS = Matrix Spike	Y = Laboratory Control Sample Duplicate
MSD = Matrix Spike Duplicate	

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: DHR12

Method: P
Run Name: 1136207T71
Calibration Date(s): 12/28/2011
Concentration Units: UG/L

Analyte	Mass	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(2)	True	Found	%R(2)
Chromium		600.0	602.83	100.5	500.0	511.98	102.4	500.0	508.08	101.6
Copper		600.0	598.91	99.8	500.0	510.91	102.2	500.0	509.79	102.0
Lead										
Nickel		600.0	602.24	100.4	500.0	507.63	101.5	500.0	508.91	101.8
Zinc		600.0	582.26	97.0	500.0	482.31	96.5	500.0	462.71	92.5

(1) Control Limits: 95 - 105
(2) Control Limits: 90 - 110

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: DHR12

Method: P
Run Name: 1136207T71
Calibration Date(s): 12/28/2011
Concentration Units: UG/L

Analyte	Mass	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(2)	True	Found	%R(2)
Chromium					500.0	499.24	99.8			
Copper					500.0	498.07	99.6			
Lead										
Nickel					500.0	508.53	101.7			
Zinc					500.0	460.91	92.2			

(1) Control Limits: 95 - 105
(2) Control Limits: 90 - 110

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: DHR12

Method: P
Run Name: 1136403T71
Calibration Date(s): 12/30/2011
Concentration Units: UG/L

Analyte	Mass	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(2)	True	Found	%R(2)
Chromium										
Copper										
Lead		600.0	589.70	98.3	500.0	473.00	94.6	500.0	483.73	96.7
Nickel										
Zinc										

(1) Control Limits: 95 - 105
(2) Control Limits: 90 - 110

DHR12 0234

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: DHR12

Method: P
Run Name: 1136403T71
Calibration Date(s): 12/30/2011
Concentration Units: UG/L

Analyte	Mass	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(2)	True	Found	%R(2)
Chromium										
Copper										
Lead					500.0	478.93	95.8			
Nickel										
Zinc										

(1) Control Limits: 95 - 105
(2) Control Limits: 90 - 110

DHR12 6232

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2B
LOW LEVEL CHECK STANDARD
SDG No.: DHR12

Method: P
Run Name: 1136207T71
Calibration Date(s): 12/28/2011
Concentration Units: UG/L

Analyte	Mass	Initial True	Initial Found	Initial %R	Final Found	Final %R
Chromium		15.0	15.91	106.1	15.55	103.7
Copper		10.0	9.68	96.8	9.18	91.8
Lead						
Nickel		10.0	10.42	104.2	10.90	109.0
Zinc		20.0	19.66	98.3	18.95	94.8

Control limits: 50% - 150%

For 6010B - Control limits apply to values up to 10 times the true value of the low level check standard. If LLC is out of specification, high, results < RL are acceptable.
For 6010C - If Low Level Check (LLC) is out of specification, results > CCV are acceptable. If LLC is out of specification, high, results < RL are acceptable.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2B
LOW LEVEL CHECK STANDARD
SDG No.: DHR12

Method: P
Run Name: 1136403T71
Calibration Date(s): 12/30/2011
Concentration Units: UG/L

Analyte	Mass	Initial True	Initial Found	Initial %R	Final Found	Final %R
Chromium						
Copper						
Lead		15.0	12.49	83.3	11.80	78.7
Nickel						
Zinc						

Control limits: 50% - 150%

For 6010B - Control limits apply to values up to 10 times the true value of the low level check standard. If LLC is out of specification, high, results < RL are acceptable.
For 6010C - If Low Level Check (LLC) is out of specification, results > CCV are acceptable. If LLC is out of specification, high, results < RL are acceptable.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: DHR12

Method: P
Run Name: 1136207T71
Calibration Date(s): 12/28/2011
Preparation Blank Matrix: WATER

Analyte	Mass	Initial Calibration Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank (UG/L) Mass		C	Lab Sample ID
Chromium		1.2	B	0.64	U	0.70	B	0.77	B		1.100	U	P35516CB
Copper		2.0	U	2.0	U	2.0	U	2.0	U		0.940	U	P35516CB
Lead													
Nickel		1.0	U	1.0	U	1.0	U	1.0	U		0.950	U	P35516CB
Zinc		2.0	U	2.0	U	2.0	U	2.0	U		3.200	U	P35516CB

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

CONCENTRATION QUALIFIERS:
U= Below IDL/MDL
B= Below LOQ

DHR12 0235

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QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: DHR12

Method: P
Run Name: 1136403T71
Calibration Date(s): 12/30/2011
Preparation Blank Matrix: WATER

Analyte	Mass	Initial Calibration Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank (UG/L) Mass		C	Lab Sample ID
Chromium													
Copper													
Lead		-2.6	B	-2.7	B	-3.6	B	-2.3	B		2.200	U	P35516CB
Nickel													
Zinc													

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

CONCENTRATION QUALIFIERS:
U= Below IDL/MDL
B= Below LOQ

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QUALITY ASSURANCE SUMMARY
FORM 4A
ICP-AES INTERFERENCE CHECK SAMPLE
SDG No.: DHR12

Instrument ID: 16315
Run Name: 1136207T71
Concentration Units: ug/L

Analyte	True		Initial Found				Final Found			
	Sol. A	Sol. AB	Sol. A	%R	Sol. AB	%R	Sol. A	%R	Sol. AB	%R
Aluminum	500000	500000	511170	102.2	509386.1	101.9	514657	102.9	516528.8	103.3
Calcium	500000	500000	510902	102.2	509960.5	102.0	527474	105.5	527207.8	105.4
Chromium	0	500	4		498.3	99.7	4		494.6	98.9
Copper	0	500	-2		542.5	108.5	-2		538.8	107.8
Iron	200000	200000	205193	102.6	204567.9	102.3	209581	104.8	210448.6	105.2
Lead										
Magnesium	500000	500000	565109	113.0	558607.2	111.7	565728	113.1	567169.0	113.4
Nickel	0	1000	-1		957.1	95.7	-1		957.9	95.8
Zinc	0	1000	26		998.6	99.9	24		928.9	92.9

Control Limits: All Metals 80%-120%

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QUALITY ASSURANCE SUMMARY
FORM 4A
ICP-AES INTERFERENCE CHECK SAMPLE
SDG No.: DHR12

Instrument ID: 16315
Run Name: 1136403T71
Concentration Units: ug/L

Analyte	True		Initial Found				Final Found			
	Sol. A	Sol. AB	Sol. A	%R	Sol. AB	%R	Sol. A	%R	Sol. AB	%R
Aluminum	500000	500000	505996	101.2	507998.3	101.6	507432	101.5	506981.2	101.4
Calcium	500000	500000	502419	100.5	509174.4	101.8	508805	101.8	505796.6	101.2
Chromium										
Copper										
Iron	200000	200000	204471	102.2	205394.7	102.7	203325	101.7	203446.0	101.7
Lead	0	50	9		52.7	105.4	7		55.0	110.0
Magnesium	500000	500000	567517	113.5	570644.3	114.1	580562	116.1	572019.0	114.4
Nickel										
Zinc										

Control Limits: All Metals 80%-120%

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QUALITY ASSURANCE SUMMARY
FORM 7
LABORATORY CONTROL SAMPLE
SDG No.: DHR12
Matrix: WATER

Analyte	Mass	Lab Sample ID	Units	True	Found	C	Control Limits (%)	%R	M	In Spec
Chromium		P35516CQ	UG/L	200.00	213.07		90 - 110	107	P	Yes
Copper		P35516CQ	UG/L	250.00	266.80		90 - 110	107	P	Yes
Lead		P35516CQ	UG/L	150.00	152.87		90 - 110	102	P	Yes
Nickel		P35516CQ	UG/L	500.00	541.98		90 - 111	108	P	Yes
Zinc		P35516CQ	UG/L	500.00	504.78		90 - 110	101	P	Yes

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

CONCENTRATION QUALIFIERS:
U= Below MDL
B= Below LOQ

DHR12 0239

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QUALITY ASSURANCE SUMMARY
FORM 10
INSTRUMENT DETECTION LIMITS (QUARTERLY)
SDG No.: DHR12

Method: P
Instrument ID: 16315
Date: 10/2011

Analyte	Wavelength (nm)	Background	IDL (UG/L)
Chromium	267.72		0.64
Copper	327.40		2.0
Lead	220.35		1.8
Nickel	231.60		1.0
Zinc	213.86		2.0

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 10 MDL
METHOD DETECTION LIMITS (ANNUALLY)
SDG No.: DHR12
Matrix: WATER

Method: P
Date: 06/2011

Analyte	Wavelength (nm)	Background	LOQ (UG/L)	MDL (UG/L)
Chromium	267.72		15.0	1.1
Copper	327.40		10.0	0.94
Lead	220.35		15.0	2.2
Nickel	231.60		10.0	0.95
Zinc	213.86		20.0	3.2

The LOQ/MDL must be adjusted for % Solids and Sample Weight for samples reporting in mg/kg and ug/L.

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 11
ICP INTERELEMENT CORRECTION FACTORS (BIANNUALLY)
SDG No.: DHR12

Instrument ID: 16315
Date: 11/2011

Analyte	Wavelength (nm)	Interelement Correction Factor for: AL	CA	FE	MG	BE
Copper	327.40	0.0000000	0.0000290	0.0000000	0.0000000	0.0000000
Lead	220.35	0.0002190	0.0000000	0.0000210	0.0000000	0.0000000
Nickel	231.60	0.0000000	0.0000000	-0.0000150	0.0000000	0.0002620
Zinc	213.86	0.0000000	0.0000000	0.0000540	0.0000000	0.0000000

Comments:

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QUALITY ASSURANCE SUMMARY
FORM 11
ICP INTERELEMENT CORRECTION FACTORS (BIANNUALLY)
SDG No.: DHR12

Instrument ID: 16315
Date: 11/2011

Analyte	Wavelength (nm)	Interelement Correction Factor for: CO	CR	CU	MO	NI
Copper	327.40	0.0004600	0.0000000	0.0000000	-0.0014300	0.0000000
Lead	220.35	0.0000600	0.0000500	0.0002420	-0.0004460	0.0001140
Nickel	231.60	-0.0004760	0.0000000	0.0000000	0.0005260	0.0000000
Zinc	213.86	0.0000000	0.0000000	0.0007830	0.0000000	0.0043800

Comments:

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QUALITY ASSURANCE SUMMARY
FORM 11
ICP INTERELEMENT CORRECTION FACTORS (BIANNUALLY)
SDG No.: DHR12

Instrument ID: 16315
Date: 11/2011

Analyte	Wavelength (nm)	Interelement Correction Factor for: SI	TI	V	--	--
Copper	327.40	0.0000000	-0.0031800	-0.0000340		
Lead	220.35	0.0001020	0.0000000	0.0000000		
Nickel	231.60	0.0000000	0.0000000	0.0000000		
Zinc	213.86	0.0000000	0.0000000	0.0000000		

Comments:

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QUALITY ASSURANCE SUMMARY
FORM 12
LINEAR RANGES
SDG No.: DHR12

Method: P
Instrument ID: 16315
Date: 10/2011

Analyte	Wavelength (nm)	Integration Time (Sec.)	Concentration (ug/L)
Chromium	267.72	10.00	20000.0
Copper	327.4	10.00	10000.0
Lead	220.35	10.00	10000.0
Nickel	231.6	10.00	10000.0
Zinc	213.86	10.00	10000.0

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 13
PREPARATION LOG
SDG No.: DHR12

Method: P
Batch ID: P35516C

Lab Sample ID	Date	Initial Volume(ml)	Final Volume(ml)
6503454	12/22/2011	50.00	50
P35516CB	12/22/2011	50.00	50
P35516CQ	12/22/2011	1.00	1

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

LEGEND:
BKG = Background
DUP = Duplicate
MS = Matrix Spike
MSD = Matrix Spike Duplicate
B = Blank
Q = Laboratory Control Sample
Y = Laboratory Control Sample Duplicate

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QUALITY ASSURANCE SUMMARY
FORM 14
ANALYSIS RUN LOG
SDG No.: DHR12

Method: P
Instrument ID: 16315
Run Name: 1136207T71

Run Start Date: 12/28/2011
Run End Date: 12/28/2011

Lab Sample ID	D/F	Time	Analytes CR	CU	PB	NI	ZN
S0	1.00	18:34	X	X		X	X
S	1.00	18:38					
S	1.00	18:41		X		X	X
S	1.00	18:45	X				
ICV	1.00	18:49	X	X		X	X
ICV	1.00	18:52	X	X		X	X
ICB	1.00	18:56	X	X		X	X
LLC	1.00	19:00	X	X		X	X
ICSA	1.00	19:03	X	X		X	X
ICSAB	1.00	19:07	X	X		X	X
CCV	1.00	19:11	X	X		X	X
CCB	1.00	19:14	X	X		X	X
P35516CB	1.00	19:18	X	X		X	X
P35516CQ	1.00	19:22	X	X		X	X
ZZZZZZ	1.00	19:25					
ZZZZZZ	1.00	19:29					
ZZZZZZ	1.00	19:33					
ZZZZZZ	1.00	19:37					
ZZZZZZ	5.00	19:41					
ZZZZZZ	1.00	19:44					
ZZZZZZ	1.00	19:48					
ZZZZZZ	1.00	19:52					
CCV	1.00	19:55	X	X		X	X
CCB	1.00	19:59	X	X		X	X
ZZZZZZ	1.00	20:02					
ZZZZZZ	1.00	20:06					
ZZZZZZ	1.00	20:10					
ZZZZZZ	1.00	20:13					
ZZZZZZ	1.00	20:17					
6503454	1.00	20:20	X	X		X	X
LLC	1.00	20:24	X	X		X	X
ICSA	1.00	20:28	X	X		X	X
ICSAB	1.00	20:31	X	X		X	X
CCV	1.00	20:35	X	X		X	X
CCB	1.00	20:39	X	X		X	X

METHODS:
- P = ICP Atomic Emission Spectrometer
- MS = ICP Mass Spectrometry
- CV = Cold Vapor
- AF = Cold Vapor Atomic Fluorescence

LEGEND:
- BKG = Background
- DUP = Duplicate
- MS = Matrix Spike
- MSD = Matrix Spike Duplicate
- A = Post Digest Spike
- L = Serial Dilution
- B = Blank
- Q = Laboratory Control Sample
- Y = Laboratory Control Sample Duplicate

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QUALITY ASSURANCE SUMMARY
FORM 14
ANALYSIS RUN LOG
SDG No.: DHR12

Method: P
Instrument ID: 16315
Run Name: 1136403T71

Run Start Date: 12/30/2011
Run End Date: 12/30/2011

Lab Sample ID	D/F	Time	Analytes CR	CU	PB	NI	ZN
S0	1.00	07:56			X		
S	1.00	08:00					
S	1.00	08:04			X		
S	1.00	08:08					
ICV	1.00	08:11			X		
ICV	1.00	08:15			X		
ICB	1.00	08:18			X		
LLC	1.00	08:22			X		
ICSA	1.00	08:26			X		
ICSAB	1.00	08:29			X		
CCV	1.00	08:33			X		
CCB	1.00	08:37			X		
P35516CB	1.00	08:40			X		
P35516CQ	1.00	08:44			X		
ZZZZZZ	1.00	08:48					
ZZZZZZ	1.00	08:51					
ZZZZZZ	1.00	08:55					
ZZZZZZ	1.00	08:59					
ZZZZZZ	5.00	09:03					
ZZZZZZ	1.00	09:07					
6503454	1.00	09:10			X		
CCV	1.00	09:14			X		
CCB	1.00	09:17			X		
LLC	1.00	09:21			X		
ICSA	1.00	09:25			X		
ICSAB	1.00	09:28			X		
CCV	1.00	09:32			X		
CCB	1.00	09:35			X		

METHODS:
- P = ICP Atomic Emission Spectrometer
- MS = ICP Mass Spectrometry
- CV = Cold Vapor
- AF = Cold Vapor Atomic Fluorescence

LEGEND:
- BKG = Background
- DUP = Duplicate
- MS = Matrix Spike
- MSD = Matrix Spike Duplicate
- A = Post Digest Spike
- L = Serial Dilution
- B = Blank
- Q = Laboratory Control Sample
- Y = Laboratory Control Sample Duplicate

Instrumental Wet Chemistry Data

Case Narrative
Conformance/Non-Conformance
Summary

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CLIENT: CH2M Hill, Inc.
SDG: DHR12

Instrumental Water Quality

Sample #	Matrix Liquid	Solid	Comments
6503454	X		

ANALYSIS:

There were no dilutions performed for analyses associated with samples in this SDG.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

Site specific matrix QC samples were not submitted for this SDG. The batch matrix QC was performed on samples from another project. Therefore the matrix effects would not be relevant and matrix QC is not provided in the data package. Laboratory spike data (LCS) are provided.

Method defined actions are taken for any failed matrix QC.

DATA INTERPRETATION:

No further interpretation is necessary for the data submitted.

Abbreviation Key

U = Unspiked (for MS/MSD)	LOQ = Limit of Quantitation
R = Matrix Spike (MS)	MDL = Method Detection Limit
M = Matrix Spike Duplicate (MSD)	ND = Not Detected
BKG = Background (for Duplicate)	J = Estimated Value
D = Duplicate (DUP)	NA = Not Applicable
HS = High Spike	ME = Method
LS = Low Spike	CO = Colorimetric
SS = Soluble Spike	G = Gravimetric
IS = Insoluble Spike	IR = Infrared Spectrophotometry
ISD = Insoluble Spike Duplicate	MTR = Meter
PDS = Post Digestion Spike	OD = Oven Dried
* = Out of Specification	TI = Titration
V = Visual	TOC = Total Organic Carbon
AK = Alpkem	IC = Ion Chromatography
TC = Total Carbon	RA = Rapid Analyzer

Narrative Reviewed and Approved by:

Sandra J. Miller
Specialist

Dana Kauffman
Manager of Data Deliverables

Date 1/10/12

Quality Control and Calibration Summary Forms

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Quality Control Reference List
Instrumental Water Quality

CLIENT: CH2M Hill, Inc.
SDG: DHR12

Analyte	Batch Number	Sample Number
Total Cyanide (water)	11355102101A	6503454
		Blank
		LCS
Total Organic Carbon	11356237301A	6503454
		Blank
		LCS

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Quality Control Summary
Method Blank
Instrumental Water Quality
SDG: DHR12
Matrix: LIQUID

Analyte	Analysis Date	Method	Batch Number	Blank Results	Units	MDL	LOQ
Total Cyanide (water)	12/22/11	AK	11355102101	N.D.	mg/l	0.0050	0.010
Total Organic Carbon	12/21/11	TOC	11356237301	N.D.	mg/l	0.50	1.0

Comments: The blank is acceptable when the result is less than the limit of quantitation.

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate (LCSD)
Instrumental Water Quality
SDG: DHR12
Matrix: LIQUID

Batch #	Analyte	Analysis Date	ME	True LCS/LCSD Value	LCS Results	LCSD Results	Units	Acceptance Range	% RPD Results	% RPD Acceptance </=
11355102101	Total Cyanide (water)	12/22/11	AK	0.2	0.19	NA	mg/l	0.179 - 0.2208	NA	NA
11356237301	Total Organic Carbon	12/21/11	TOC	25	24.7	NA	mg/l	22.63 - 28.35	NA	NA

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Quality Control Summary
Initial And Continuing Calibration
Instrumental Analysis/TCN

SDG: DHR12

Instrument ID: 09037
Calibration Date: 12/22/2011

Analysis	AUTO CAL1	AUTO CAL2	AUTO CAL3	AUTO CAL4	AUTO CAL5	AUTO CAL6	CC
Total Cyanide	0.4185	0.4946	0.7334	1.1254	1.8724	2.9835	0.9999

Acceptance Range:
ICV/CCV: +/- 10%
ICB/CCB: < MDL

Concentration units: mg/L

Batch Numbers: 11355102101A
Run Start Dates: 12/22/2011
Run Names: 1135602C01

	Total Cyanide		
Sample	True	Result	%Rec
ICV	0.15	0.14840	99
ICB	0	ND	NA
CCV2	0.15	0.15580	104
CCB 3	0	ND	NA
CCV2	0.15	0.15460	103
CCB 4	0	ND	NA
CCV2	0.15	0.14930	100
CCB 5	0	ND	NA

* = Out of Specifications

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Quality Control Summary
Initial And Continuing Calibration
Instrumental Analysis/TOC

SDG: DHR12

Instrument ID: 15610
Calibration Date: 12/01/2011

Analysis	AUTO CAL1	AUTO CAL2	AUTO CAL3	AUTO CAL4	AUTO CAL5	AUTO CAL6	CC
TOC	10048	62143	82469	201647	393034	792349	0.99998

Acceptance Range:
ICV/CCV: 90%-110%
ICB/CCB: < LOQ

Concentration units: mg/L

Batch Numbers: 11356237301A
Analysis Dates: 12/21/2011

	TOC		
Sample	True	Result	%Rec
ICV	25	24.383	98
ICB	0	ND	NA
CCV2	25	25.1770	101
CCB	0	ND	NA
CCV2	25	24.734	99
CCB	0	ND	NA
CCV2	25	24.609	98
CCB	0	ND	NA

* = Out of Specification are immediately followed by two acceptable CCV's

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LOQ/MDL Summary
Instrumental Water Quality

SDG: DHR12

Fraction:

Parameter	Default MDL	Default LOQ	Units
Total Cyanide (water)	0.0050	0.010	mg/l
Total Organic Carbon	0.50	1.0	mg/l

DHR12 8258

Extraction/Distillation/Digestion Logs

Lancaster Laboratories

Raw Data Logbook
Total Cyanide/Distillations
Analysis #492, 5896, 8256

Start Time: ~~15:~~ 13:15
Cool Time: 15:00
Finish: 15:15

Batch No. 11355 102 101 A

Enter 102 for Analysis 492, 5896
Enter 117 for Analysis 8256

Analysis: 0492 Date: 12.21.11 Analyst: [illegible]

Std. Ref. (Book/Page/Line): 140759p.10C.5-6

Bottle Code	Sample Number	Initial Volume (mL)	Initial Weight (g)	Comments/True Values	SDG
	ICSW	50		+.5mL 20mg/L HCN	
	PBW	50			
02A	6503042	50			
	6503058	50			
	6503059	10		black	
	6503412 U	50			
	D	50			
	R	50		+.5mL 20mg/L HCN	
	6503413	50			
	6503414	50			
	6503415	50			
	6503454	50			DHR12
	6504203	50			
02A	6505430	50			
	[illegible] 12.21.11				

Please Note: Final extraction volume is 50 mL

DHR12 8268

Verified: [illegible] Date: 12.26.11

1095.01

142487 19

Wet Chemistry Data

Case Narrative
Conformance/Non-Conformance
Summary

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CLIENT: CH2M Hill, Inc.
SDG: DHR12

Miscellaneous Wet Chemistry

Sample #	Matrix: Liquid	Solid	Comments
6503454	X		

ANALYSIS:

There were no dilutions performed for analyses associated with samples in this SDG.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

Batch#: 11351023501A (Sample number(s): 6503454, UNSPK: P503188, BKG: P502918)
The laboratory control sample analyzed on this sample's batch yielded a recovery of 77%. The method acceptance window is 85% to 115%. Because the 48-hour holding time had lapsed, BOD was not reanalyzed. The above result is reported with client consent.

Site specific matrix QC samples were not submitted for this SDG. The batch matrix QC was performed on samples from another project. Therefore the matrix effects would not be relevant and matrix QC is not provided in the data package. Laboratory spike data (LCS) are provided.

Method defined actions are taken for any failed matrix QC.

DATA INTERPRETATION:

No further interpretation is necessary for the data submitted.

Abbreviation Key

U = Unspiked (for MS/MSD)	LOQ = Limit of Quantitation
R = Matrix Spike (MS)	MDL = Method Detection Limit
M = Matrix Spike Duplicate (MSD)	ND = Not Detected
BKG = Background (for Duplicate)	J = Estimated Value
D = Duplicate (DUP)	NA = Not Applicable
HS = High Spike	ME = Method
LS = Low Spike	CO = Colorimetric
SS = Soluble Spike	G = Gravimetric
IS = Insoluble Spike	IR = Infrared Spectrophotometry
ISD = Insoluble Spike Duplicate	MTR = Meter
PDS = Post Digestion Spike	OD = Oven Dried
* = Out of Specification	TI = Titration
V = Visual	TOC = Total Organic Carbon
AK = Alpkem	IC = Ion Chromatography
TC = Total Carbon	RA = Rapid Analyzer

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CLIENT: CH2M Hill, Inc.
SDG: DHR12

Narrative Reviewed and Approved by:

Patricia Weirich for _____ Date 1-7-12

Dana Kauffman
Manager of Data Deliverables

QC Summary

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Quality Control Reference List
Miscellaneous Wet Chemistry

CLIENT: CH2M Hill, Inc.
SDG: DHR12

Analyte	Batch Number	Sample Number
Biochemical Oxygen Demand	11351023501A	6503454 LCS
HEM (oil & grease)	11361807901A	6503454 Blank LCS/LCSD
Total Suspended Solids	11354020601A	6503454 Blank LCS

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Quality Control Summary
Method Blank
Miscellaneous Wet Chemistry
SDG: DHR12
Matrix: LIQUID

Analyte	Analysis Date	Method	Batch Number	Blank Results	Units	MDL	LOQ
HEM (oil & grease)	12/27/11	G	11361807901	N.D.	mg/l	1.4	5.0
Total Suspended Solids	12/20/11	G	11354020601	N.D.	mg/l	3.0	12.0

DHR12 8267

Comments: The blank is acceptable when the result is less than the limit of quantitation.

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate (LCSD)
Miscellaneous Wet Chemistry
SDG: DHR12
Matrix: LIQUID

Batch #	Analyte	Analysis Date	ME	True LCS/LCSD Value	LCS Results	LCSD Results	Units	Acceptance Range	% RPD Results	% RPD Acceptance </=
11351023501	Biochemical Oxygen Demand	12/17/11	MTR	198	152*	NA	mg/l	167.5 - 228.5	NA	NA
11361807901	HEM (oil & grease)	12/27/11	G	40	34.4	32.2	mg/l	31 - 45.7	7	16
11354020601	Total Suspended Solids	12/20/11	G	150	120	NA	mg/l	120 - 158	NA	NA

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LOQ/MDL Summary
Miscellaneous Wet Chemistry

SDG: DHR12

Fraction:

Parameter	Default MDL	Default LOQ	Units
Biochemical Oxygen Demand	0.80	3.0	mg/l
HEM (oil & grease)	1.4	5.0	mg/l
Total Suspended Solids	3.0	12.0	mg/l

DHR12 8269

Moisture Data

MOISTURE

SAMPLE NUMBERS:

Sample #	Sample Code
6503455	--S1-
6503456	--S2-
6503457	--S3-

Laboratory Compliance Quality Control

Analysis Name	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 11355820003B	Sample number(s): 6503455-6503457				
Moisture	100		99-101		

Sample Matrix Quality Control

Analysis Name	BKG Conc	DUP Conc	RPD	RPD Max
Batch number: 11355820003B	Sample number(s): 6503455-6503457			
Moisture	20.1	19.5	3	15

* - Outside of specification
(1) - The result for one or both determinations was less than five times the LOQ.

Moisture Data Report

Batch #: 11355820003

Sample ID	Batch ID	Analysis#	Tare Wt	Sample Wt	Dry Wt	%Moisture	Analysis Date (Emp#)	Verified Date (Emp#)
LCS 89.5% Std.			1.0852	5.0390	1.6210	89.37	12/21/11 (1201/SWF	12/22/11 (0236/CW)
6503455	B	00111	1.0977	7.3797	7.2357	16.83	12/21/11 (1201/SWF	12/22/11 (0236/CW)
6503456	B	00111	1.0902	9.4350	9.0661	15.46	12/21/11 (1201/SWF	12/22/11 (0236/CW)
6503457BKG	B	00111	1.0967	8.9806	8.2731	20.09	12/21/11 (1201/SWF	12/22/11 (0236/CW)
6503457DUP	B	00111	1.0732	8.6153	8.0097	19.49	12/21/11 (1201/SWF	12/22/11 (0236/CW)

DHR12 6271

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Type I (No Raw Data) Data Package

Prepared for:

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

Project: Dow Hanging Rock, OH
Sediment and Water Samples
Collected on 01/18/12

SDG# DHR13

GROUP	SAMPLE NUMBERS
1285783	6526784-6526794

PA Cert. # 36-00037
NY Cert. # 10670
NJ Cert. # PA011
NC Cert. # 521
TX Cert. # T104704194-08A-TX

Through our technical processes and second person review of data, we have established that our data/deliverables are in compliance with the methods and project requirements unless otherwise noted or previously resolved with the client.

Authorized by: Dana M Kauffman **Date: 02/03/2012**

Dana M. Kauffman
Manager

Any questions or concerns you might have regarding this data package should be directed to your client representative, Wendy Kozma at Ext. 1522.

Total Number of Pages 258

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Sample Reference List for SDG Number DHR13
with a Data Package Type of I-NODATA

11372 - CH2M Hill, Inc.

Project: Dow Hanging Rock, OH

Lab Sample Number	Lab Sample Code	Client Sample Description
6526784	18S1-	S18-SD01 Unspiked Grab Sediment Sample
6526785	18S1-	S18-SD01 Matrix Spike Grab Sediment Sample
6526786	18S1-	S18-SD01 Matrix Spike Dup Grab Sediment Sample
6526787	18S1-	S18-SD01 Duplicate Grab Sediment Sample
6526788	18S2-	S18-SD02 Grab Sediment Sample
6526789	FD2–	HGR-011812-FD02 Grab Sediment Sample
6526790	17S-1	S17-SD01 Grab Sediment Sample
6526791	18S3-	S18-SD03 Grab Sediment Sample
6526792	18S4-	S18-SD04 Grab Sediment Sample
6526793	18S5-	S18-SD05 Grab Sediment Sample
6526794	SD-TB	HGR-011812-TB01 Water Sample

Analysis Request/ Environmental Services Chain of Custody

Lancaster Laboratories

For Lancaster Laboratories use only

Acct. # 11372 Group# 1285783 Sample # 6526784-94 **COC #** 214015

Please print. Instructions on reverse side correspond with circled numbers.

For Lab Use Only
FSC:
SCR#: 116277

(1) Client: CH2M HILL Acct. #:
Project Name/#: Dow Hanging Rock/420671 PWSID #:
Project Manager: Mark Holland/CH2M HILL P.O.#:
Sampler: Jeff Johnson/CH2M HILL Quote #:
Name of state where samples were collected: OHIO

(5) Analyses Requested — Preservation Codes

Preservation Codes: H=HCl, T=Thiosulfate, N=HNO_3, B=NaOH, S=H_2SO_4, O=Other

(2) Sample Identification | Date Collected | Time Collected | (3) Grab | Composite | Soil | Water | Other | Total | VOC | SVOC | RCRA 8 Metals | Remarks

Sample Identification	Date Collected	Time Collected	Grab	Composite	Soil	Water	Other	Total	VOC	SVOC	RCRA 8 Metals	Remarks
S18-SD01	1/18/12	0945	X				X	2	X	X	X	
S18-SD01-MS/MSD	1/18/12	0945	X				X	4	X	X	X	
S18-SD02	1/18/12	1000	X				X	2	X	X	X	
HGR-011812-FD02	1/18/12	1000	X				X	2	X	X	X	
S17-SD01	1/18/12	1015	X				X	2	X	X	X	
~~S18-SD02~~ S18-[illegible]03	1/18/12	1330	X				X	2	X	X	X	
S18-SD04	1/18/12	1400	X				X	2	X	X	X	
S18-SD05	1/18/12	1415	X				X	2	X	X	X	
HGR-011812-TB01	1/18/12	1600	X			X		2	X			HCL Preserved

(7) **Turnaround Time Requested** (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed:
Rush results requested by (please circle): Phone Fax E-mail
Phone #: Fax #:
E-mail address:

(8) **Data Package Options** (please circle if required)
Type I (validation/NJ Reg) TX TRRP-13
Type II (Tier II) MA MCP CT RCP
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)

SDG Complete? Yes No
Site-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate volume.)
Internal COC Required? Yes / No

(9)

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	1/12/12	1410	[signature]	1/19/12	0900
[signature]	1/19/12	1700			
			Brandy Bauly	1-19-12	945

Lancaster Laboratories, Inc., 2425 New Holland Pike, Lancaster, PA 17601 (717) 656-2300 Fax: (717) 656-6766
Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client.

2102.03

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Environmental Sample Administration Receipt Documentation Log

Client/Project: Cham H.11

Date of Receipt: 1-19-12

Time of Receipt: 945

Source Code: 50-1

Shipping Container Sealed: (YES) NO

Custody Seal Present * : (YES) NO

* Custody seal was intact unless otherwise noted in the discrepancy section

Package: (Chilled) Not Chilled

Temperature of Shipping Containers							
Cooler #	Thermometer ID	Temperature (°C)	Temp Bottle (TB) or Surface Temp (ST)	Wet Ice (WI) or Dry Ice (DI) or Ice Packs (IP)	Ice Present? Y/N	Loose (L) Bagged Ice (B) or NA	Comments ST 1316
1	2783	3.3	TB	WI	Y	B	
2		3.6					
3		6.3					6.8 7.0 7.5 6.8 7.0 7.1
4		4.6					
5		1.4					
6	↓	4.4	↓	↓	↓	↓	

Number of Trip Blanks received NOT listed on chain of custody: 2

Paperwork Discrepancy/Unpacking Problems:

BLB 1-19-12

* Ice on top of cooler TB on Bottom
Rec 1 metals QC for MAR-1DW-LX3
Time 1510

Unpacker Signature/Emp#: Brandy Bardy 2299 **Date/Time:** 1-19-12 1100

Issued by Dept. 6042 Management

2174.06

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Environmental Sample Administration
Receipt Documentation Log
(continuation page)

Client/Project: Cham Hill

Date of Receipt: 1-19-12

Unpacker Emp. No.: 2299

Additional Paperwork Discrepancy/Unpacking Problems:

Rec 13 containers for ID's that say Rec 3 containers

Rec Following Samples out of temp
Total Cyanide - SG-0000-011812, HGR-1DW-W2
BOD - SG-0000-011812

O&G - 2 Bottles for - HGR-011812-FD01, WWS-0000-011812, WWS-0000-011812MS, WWS-0000-011812MSD

lead - SG-0000-011812, HGR-1DW-W2

low level mercury - HGR-011812-FD01, WWS-0000-011812, WWS-0000-011812MS WWS-0000-011812MSD, SG-0000-011812 HGR-1DW-W2
HGR-1DW-54 Time = 1515
HGR-1DW-55 Time = 1530

DNR13 [illegible]

Lancaster Laboratories
2425 New Holland Pike • Lancaster, PA 17601

GC/MS Volatiles pH Log

Batch # Y120301AA

LLI#	pH	Date Checked	Initials/ Employee #	Comments
6526794	<2	1/31/2012	ADS 1731	38A
6528070	<2	1/31/2012	ADS 1731	38A
6528071	<2	1/31/2012	ADS 1731	38A
6528072	<2	1/31/2012	ADS 1731	38A
6528074	<2	1/31/2012	ADS 1731	38A
6528073	<2	1/31/2012	ADS 1731	38A

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01163 GC/MS VOA Water Prep

An undiluted aliquot of the water sample or a dilution of the sample is purged with an inert gas and the volatiles are collected on an adsorbent trap that is subsequently desorbed onto a gas chromatographic column.

Reference: Test Methods for Evaluating Solid Wastes, SW-846 Method 5030B, December 1996.

10904 8260 Ext. Water Master

The water sample is purged and the volatile compounds are collected on a sorbent trap that is subsequently desorbed onto the GC/MS system for chromatographic and mass spectral analysis.

Reference: Test Methods for Evaluating Solid Wastes, SW-846 Method 8260B, December 1996

10949 8260 Ext. Soil Master

The soil sample is purged and the volatile compounds are collected on a sorbent trap that is subsequently desorbed onto the GC/MS system for chromatographic and mass spectral analysis.

Reference: Test Methods for Evaluating Solid Wastes, SW-846 Method 8260B, December 1996

00159 Mercury

The solution resulting from the mercury digestion is analyzed by Cold Vapor AA.

Reference: Test Methods for Evaluating Solid Wastes, SW-846 Method 7471A, September 1994

05711 SW SW846 Hg Digest

The sample is heated at 95 c with nitric acid, sulfuric acid, potassium persulfate, and potassium permanganate. Excess potassium permanganate is reduced with sodium chloride/hydroxylamine hydrochloride. Mercuric ions are reduced to mercury metal using stannous chloride.

Reference: Test Methods for Evaluating Solid Wastes, SW-846 Method 7471A Modified, September 1994.

06946 Barium
06949 Cadmium
06951 Chromium
06955 Lead
06936 Selenium
06966 Silver

The solution resulting from the metals digestion is analyzed by Trace ICP.

Reference: Test Methods for Evaluating Solid Wastes, SW-846 Method 6010B, December 1996.

06125 Arsenic

The solution resulting from the metals digestion is analyzed by ICP/MS.

Reference: Test Methods for Evaluating Solid Wastes, SW-846 Method 6020, September 1994.

05708 SW SW846 ICP/ICP MS Digest

The sample is digested with nitric acid, hydrochloric acid and hydrogen peroxide.

Reference: Test Methods for Evaluating Solid Wastes, SW-846 Method 3050B, December 1996

10727 TCL 8270 (microwave)

The sample extract is analyzed by capillary column Gas Chromatography/Mass Spectrometry.

Reference: Test Methods for Evaluating Solid Wastes, SW-846 Method 8270C, December 1996

10809 BNA Soil Microwave

The sample aliquot is extracted using microwave extraction with 1:1 methylene chloride and acetone. The extract is concentrated prior to analysis.

Reference: Test Methods for Evaluating Solid Wastes, SW-846 Method 3546, Revision 0, February 2007.

00111 Moisture
00118 Moisture
00121 Moisture Duplicate

A well-mixed sample is placed in a tared container and dried to a constant weight in an oven at 103-105C. The increase in weight is the total solids.

Reference: Standard Methods for the Examination of Water and Wastewater, 20th Edition, 1998, Method 2540 G

00374 GC/MS - Bulk Soil Prep

Samples are field collected in glass containers, and preserved within 48 hours. An aliquot of the soil sample is prepared in reagent water and is purged at 40oC with helium.

Reference: Test Methods for Evaluating Solid Waste, SW-846, Method 5035A Modified, July 2002.

06646 GC/MS HL Bulk Sample Prep

Samples are field collected in glass containers, and preserved within 48 hours. An aliquot of the methanolic extract of the sample is diluted in reagent water and purged at ambient temperature with helium.

Reference: Test Methods for Evaluating Solid Waste, SW-846, Method 5035A Modified, July 2002.

ANALYTICAL RESULTS

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425

Prepared for:

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

January 31, 2012

Project: Dow Hanging Rock, OH

Submittal Date: 01/19/2012
Group Number: 1285783
SDG: DHR13
PO Number: 420671-04
Release Number: DHR13
State of Sample Origin: OH

Client Sample Description	Lancaster Labs (LLI) #
S18-SD01 Unspiked Grab Sediment Sample	6526784
S18-SD01 Matrix Spike Grab Sediment Sample	6526785
S18-SD01 Matrix Spike Dup Grab Sediment Sample	6526786
S18-SD01 Duplicate Grab Sediment Sample	6526787
S18-SD02 Grab Sediment Sample	6526788
HGR-011812-FD02 Grab Sediment Sample	6526789
S17-SD01 Grab Sediment Sample	6526790
S18-SD03 Grab Sediment Sample	6526791
S18-SD04 Grab Sediment Sample	6526792
S18-SD05 Grab Sediment Sample	6526793
HGR-011812-TB01 Water Sample	6526794

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Shane Lowe
ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Rachel Grand
1 COPY TO	Data Package Group	

DHR13 [illegible]

Questions? Contact your Client Services Representative
Wendy A Kozma at (717) 656-2300 Ext. 1522

Respectfully Submitted,

Robin C. Runkle
Senior Specialist

Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster PA, 17605-2425
717-656-2300 Fax: 717-656-2681

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

J estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers		Inorganic Qualifiers	
A	TIC is a possible aldol-condensation product	**B**	Value is <CRDL, but ≥IDL
B	Analyte was also detected in the blank	**E**	Estimated due to interference
C	Pesticide result confirmed by GC/MS	**M**	Duplicate injection precision not met
D	Compound quantitated on a diluted sample	**N**	Spike sample not within control limits
E	Concentration exceeds the calibration range of the instrument	**S**	Method of standard additions (MSA) used for calculation
N	Presumptive evidence of a compound (TICs only)	**U**	Compound was not detected
P	Concentration difference between primary and confirmation columns >25%	**W**	Post digestion spike out of control limits
U	Compound was not detected	*	Duplicate analysis not within control limits
X,Y,Z	Defined in case narrative	+	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as "analyze immediately" are not performed within 15 minutes.

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Sample Description: S18-SD01 Unspiked Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526784
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 09:45 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S1- SDG#: DHR13-01BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	Acetone	67-64-1	17	J	10	1
10949	Benzene	71-43-2	0.7	U	0.7	1
10949	Bromobenzene	108-86-1	1	U	1	1
10949	Bromochloromethane	74-97-5	1	U	1	1
10949	Bromodichloromethane	75-27-4	1	U	1	1
10949	Bromoform	75-25-2	1	U	1	1
10949	Bromomethane	74-83-9	3	U	3	1
10949	2-Butanone	78-93-3	6	U	6	1
10949	n-Butylbenzene	104-51-8	1	U	1	1
10949	sec-Butylbenzene	135-98-8	1	U	1	1
10949	tert-Butylbenzene	98-06-6	1	U	1	1
10949	Carbon Disulfide	75-15-0	1	U	1	1
10949	Carbon Tetrachloride	56-23-5	1	U	1	1
10949	Chlorobenzene	108-90-7	1	U	1	1
10949	Chloroethane	75-00-3	3	U	3	1
10949	Chloroform	67-66-3	1	U	1	1
10949	Chloromethane	74-87-3	3	U	3	1
10949	2-Chlorotoluene	95-49-8	1	U	1	1
10949	4-Chlorotoluene	106-43-4	1	U	1	1
10949	Cyclohexane	110-82-7	1	U	1	1
10949	1,2-Dibromo-3-chloropropane	96-12-8	3	U	3	1
10949	Dibromochloromethane	124-48-1	1	U	1	1
10949	1,2-Dibromoethane	106-93-4	1	U	1	1
10949	Dibromomethane	74-95-3	1	U	1	1
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	1
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	1
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	1
10949	Dichlorodifluoromethane	75-71-8	3	U	3	1
10949	1,1-Dichloroethane	75-34-3	1	U	1	1
10949	1,2-Dichloroethane	107-06-2	1	U	1	1
10949	1,1-Dichloroethene	75-35-4	1	U	1	1
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	1
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	1
10949	1,2-Dichloropropane	78-87-5	1	U	1	1
10949	1,3-Dichloropropane	142-28-9	1	U	1	1
10949	2,2-Dichloropropane	594-20-7	1	U	1	1
10949	1,1-Dichloropropene	563-58-6	1	U	1	1
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	1
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	1
10949	Ethylbenzene	100-41-4	1	U	1	1
10949	Freon 113	76-13-1	3	U	3	1
10949	Hexachlorobutadiene	87-68-3	3	U	3	1
10949	2-Hexanone	591-78-6	4	U	4	1
10949	Isopropylbenzene	98-82-8	3	J	1	1
10949	p-Isopropyltoluene	99-87-6	1	U	1	1
10949	Methyl Acetate	79-20-9	3	U	3	1
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.7	U	0.7	1
10949	4-Methyl-2-pentanone	108-10-1	4	U	4	1
10949	Methylcyclohexane	108-87-2	1	U	1	1
10949	Methylene Chloride	75-09-2	3	U	3	1
10949	Naphthalene	91-20-3	1	U	1	1

DHR13 0001

Sample Description: S18-SD01 Unspiked Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526784
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 09:45 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S1- SDG#: DHR13-01BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	1
10949	Styrene	100-42-5	1	U	1	1
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	1
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	1
10949	Tetrachloroethene	127-18-4	1	U	1	1
10949	Toluene	108-88-3	1	U	1	1
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	1
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	1
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	1
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	1
10949	Trichloroethene	79-01-6	1	U	1	1
10949	Trichlorofluoromethane	75-69-4	3	U	3	1
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	1
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	1
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	1
10949	Vinyl Acetate	108-05-4	3	U	3	1
10949	Vinyl Chloride	75-01-4	1	U	1	1
10949	m+p-Xylene	179601-23-1	1	U	1	1
10949	o-Xylene	95-47-6	1	U	1	1
Trial ID: RE						
10949	Acetone	67-64-1	20	J	10	1.04
10949	Benzene	71-43-2	0.7	U	0.7	1.04
10949	Bromobenzene	108-86-1	1	U	1	1.04
10949	Bromochloromethane	74-97-5	1	U	1	1.04
10949	Bromodichloromethane	75-27-4	1	U	1	1.04
10949	Bromoform	75-25-2	1	U	1	1.04
10949	Bromomethane	74-83-9	3	U	3	1.04
10949	2-Butanone	78-93-3	6	U	6	1.04
10949	n-Butylbenzene	104-51-8	1	U	1	1.04
10949	sec-Butylbenzene	135-98-8	2	J	1	1.04
10949	tert-Butylbenzene	98-06-6	1	U	1	1.04
10949	Carbon Disulfide	75-15-0	1	U	1	1.04
10949	Carbon Tetrachloride	56-23-5	1	U	1	1.04
10949	Chlorobenzene	108-90-7	1	U	1	1.04
10949	Chloroethane	75-00-3	3	U	3	1.04
10949	Chloroform	67-66-3	1	U	1	1.04
10949	Chloromethane	74-87-3	3	U	3	1.04
10949	2-Chlorotoluene	95-49-8	1	U	1	1.04
10949	4-Chlorotoluene	106-43-4	1	U	1	1.04
10949	Cyclohexane	110-82-7	1	U	1	1.04
10949	1,2-Dibromo-3-chloropropane	96-12-8	3	U	3	1.04
10949	Dibromochloromethane	124-48-1	1	U	1	1.04
10949	1,2-Dibromoethane	106-93-4	1	U	1	1.04
10949	Dibromomethane	74-95-3	1	U	1	1.04
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	1.04
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	1.04
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	1.04
10949	Dichlorodifluoromethane	75-71-8	3	U	3	1.04
10949	1,1-Dichloroethane	75-34-3	1	U	1	1.04
10949	1,2-Dichloroethane	107-06-2	1	U	1	1.04

Sample Description: S18-SD01 Unspiked Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526784
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 09:45 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S1- SDG#: DHR13-01BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg		ug/kg	
10949	1,1-Dichloroethene	75-35-4	1	U	1	1.04
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	1.04
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	1.04
10949	1,2-Dichloropropane	78-87-5	1	U	1	1.04
10949	1,3-Dichloropropane	142-28-9	1	U	1	1.04
10949	2,2-Dichloropropane	594-20-7	1	U	1	1.04
10949	1,1-Dichloropropene	563-58-6	1	U	1	1.04
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	1.04
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	1.04
10949	Ethylbenzene	100-41-4	1	U	1	1.04
10949	Freon 113	76-13-1	3	U	3	1.04
10949	Hexachlorobutadiene	87-68-3	3	U	3	1.04
10949	2-Hexanone	591-78-6	4	U	4	1.04
10949	Isopropylbenzene	98-82-8	4	J	1	1.04
10949	p-Isopropyltoluene	99-87-6	1	U	1	1.04
10949	Methyl Acetate	79-20-9	3	U	3	1.04
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.7	U	0.7	1.04
10949	4-Methyl-2-pentanone	108-10-1	4	U	4	1.04
10949	Methylcyclohexane	108-87-2	1	U	1	1.04
10949	Methylene Chloride	75-09-2	3	U	3	1.04
10949	Naphthalene	91-20-3	1	U	1	1.04
10949	n-Propylbenzene	103-65-1	1	U	1	1.04
10949	Styrene	100-42-5	1	U	1	1.04
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	1.04
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	1.04
10949	Tetrachloroethene	127-18-4	1	U	1	1.04
10949	Toluene	108-88-3	1	U	1	1.04
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	1.04
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	1.04
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	1.04
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	1.04
10949	Trichloroethene	79-01-6	1	U	1	1.04
10949	Trichlorofluoromethane	75-69-4	3	U	3	1.04
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	1.04
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	1.04
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	1.04
10949	Vinyl Acetate	108-05-4	3	U	3	1.04
10949	Vinyl Chloride	75-01-4	1	U	1	1.04
10949	m+p-Xylene	179601-23-1	1	U	1	1.04
10949	o-Xylene	95-47-6	1	U	1	1.04

The GC/MS volatile internal standard peak areas were outside the QC limits. A re-analysis was performed, and the matrix effect was confirmed.

GC/MS Semivolatiles	**SW-846 8270C**		ug/kg		ug/kg	
10727	Acenaphthene	83-32-9	48	U	48	10
10727	Acenaphthylene	208-96-8	70	J	48	10
10727	Anthracene	120-12-7	270		48	10
10727	Benzo(a)anthracene	56-55-3	720		48	10
10727	Benzo(a)pyrene	50-32-8	750		48	10
10727	Benzo(b)fluoranthene	205-99-2	930		48	10

Sample Description: S18-SD01 Unspiked Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526784
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 09:45 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S1- SDG#: DHR13-01BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles SW-846 8270C			ug/kg		ug/kg	
10727	Benzo(g,h,i)perylene	191-24-2	560		48	10
10727	Benzo(k)fluoranthene	207-08-9	550		48	10
10727	Benzyl alcohol	100-51-6	2,400	U	2,400	10
10727	1,1'-Biphenyl	92-52-4	1,400		240	10
10727	4-Bromophenyl-phenylether	101-55-3	240	U	240	10
10727	Butylbenzylphthalate	85-68-7	950	U	950	10
10727	Di-n-butylphthalate	84-74-2	950	U	950	10
10727	Carbazole	86-74-8	240	U	240	10
10727	4-Chloro-3-methylphenol	59-50-7	240	U	240	10
10727	4-Chloroaniline	106-47-8	240	U	240	10
10727	bis(2-Chloroethoxy)methane	111-91-1	240	U	240	10
10727	bis(2-Chloroethyl)ether	111-44-4	240	U	240	10
10727	bis(2-Chloroisopropyl)ether	39638-32-9	240	U	240	10
10727	2-Chloronaphthalene	91-58-7	100	U	100	10
10727	2-Chlorophenol	95-57-8	240	U	240	10
10727	4-Chlorophenyl-phenylether	7005-72-3	240	U	240	10
10727	Chrysene	218-01-9	850		48	10
10727	Dibenz(a,h)anthracene	53-70-3	130	J	48	10
10727	Dibenzofuran	132-64-9	240	U	240	10
10727	3,3'-Dichlorobenzidine	91-94-1	1,400	U	1,400	10
10727	2,4-Dichlorophenol	120-83-2	240	U	240	10
10727	Diethylphthalate	84-66-2	950	U	950	10
10727	2,4-Dimethylphenol	105-67-9	240	U	240	10
10727	Dimethylphthalate	131-11-3	950	U	950	10
10727	4,6-Dinitro-2-methylphenol	534-52-1	2,400	U	2,400	10
10727	2,4-Dinitrophenol	51-28-5	4,300	U	4,300	10
10727	2,4-Dinitrotoluene	121-14-2	950	U	950	10
10727	2,6-Dinitrotoluene	606-20-2	240	U	240	10
10727	1,4-Dioxane	123-91-1	1,400	U	1,400	10
10727	bis(2-Ethylhexyl)phthalate	117-81-7	950	U	950	10
10727	Fluoranthene	206-44-0	2,200		48	10
10727	Fluorene	86-73-7	550		48	10
10727	Hexachlorobenzene	118-74-1	48	U	48	10
10727	Hexachlorocyclopentadiene	77-47-4	2,400	U	2,400	10
10727	Hexachloroethane	67-72-1	480	U	480	10
10727	Indeno(1,2,3-cd)pyrene	193-39-5	510		48	10
10727	Isophorone	78-59-1	240	U	240	10
10727	2-Methylnaphthalene	91-57-6	64	J	48	10
10727	2-Methylphenol	95-48-7	240	U	240	10
10727	4-Methylphenol	106-44-5	240	U	240	10
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	240	U	240	10
10727	3-Nitroaniline	99-09-2	950	U	950	10
10727	4-Nitroaniline	100-01-6	950	U	950	10
10727	Nitrobenzene	98-95-3	240	U	240	10
10727	2-Nitrophenol	88-75-5	240	U	240	10
10727	4-Nitrophenol	100-02-7	2,400	U	2,400	10
10727	N-Nitroso-di-n-propylamine	621-64-7	240	U	240	10
10727	N-Nitrosodiphenylamine	86-30-6	240	U	240	10

DHR13 0014

Sample Description: S18-SD01 Unspiked Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526784
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 09:45 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S1- SDG#: DHR13-01BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	950	U	950	10
10727	Pentachlorophenol	87-86-5	480	U	480	10
10727	Phenanthrene	85-01-8	1,100		48	10
10727	Phenol	108-95-2	240	U	240	10
10727	Pyrene	129-00-0	1,600		48	10
10727	2,4,5-Trichlorophenol	95-95-4	240	U	240	10
10727	2,4,6-Trichlorophenol	88-06-2	240	U	240	10
	Reporting limits were raised due to interference from the sample matrix.					
Metals		**SW-846 6010B**	**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	98.5		0.0254	1
06949	Cadmium	7440-43-9	0.709		0.0282	1
06951	Chromium	7440-47-3	46.5		0.198	1
06955	Lead	7439-92-1	33.2		0.311	1
06936	Selenium	7782-49-2	0.960	U	0.960	1
06966	Silver	7440-22-4	0.117	U	0.117	1
		SW-846 6020	**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	6.47		0.113	2
		SW-846 7471A	**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0221	J	0.0096	1
Wet Chemistry		**SM20 2540 G**	**%**		**%**	
00111	Moisture	n.a.	29.9		0.50	1
	"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.					

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	B120241AA	01/24/2012 14:02	Chelsea B Eastep	1
10949	8260 Ext. Soil Master	SW-846 8260B	2	B120241AA	01/24/2012 15:54	Chelsea B Eastep	1.04
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	1	201201926615	01/19/2012 21:48	Scott W Freisher	n.a.
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	2	201201926615	01/19/2012 21:48	Scott W Freisher	n.a.

Sample Description: S18-SD01 Unspiked Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526784
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 09:45 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S1- SDG#: DHR13-01BKG

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06646	GC/MS HL Bulk Sample Prep	SW-846 5035A Modified	1	201201926615	01/19/2012 21:18	Scott W Freisher	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	12020SLA026	01/23/2012 14:52	Matthew S Woods	10
10809	BNA Soil Microwave	SW-846 3546	1	12020SLA026	01/20/2012 14:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	120245708001	01/24/2012 23:39	John W Yanzuk II	1
06949	Cadmium	SW-846 6010B	1	120245708001	01/24/2012 23:39	John W Yanzuk II	1
06951	Chromium	SW-846 6010B	1	120245708001	01/24/2012 23:39	John W Yanzuk II	1
06955	Lead	SW-846 6010B	1	120245708001	01/24/2012 23:39	John W Yanzuk II	1
06936	Selenium	SW-846 6010B	1	120245708001	01/24/2012 23:39	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	120245708001	01/24/2012 23:39	John W Yanzuk II	1
06125	Arsenic	SW-846 6020	1	120245708001A	01/26/2012 11:01	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	120255711001	01/25/2012 18:59	Nelli S Markaryan	1
05708	SW SW846 ICP/ICP MS Digest	SW-846 3050B	1	120245708001	01/24/2012 12:28	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	120245711001	01/24/2012 14:40	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	2	120255711001	01/25/2012 12:50	James L Mertz	1
00111	Moisture	SM20 2540 G	1	12025820002B	01/25/2012 18:32	Scott W Freisher	1

DHR13 0016

Sample Description: S18-SD01 Matrix Spike Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526785
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 09:45 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S1- SDG#: DHR13-01MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	SW-846 8260B		ug/kg	ug/kg	
10949	Acetone	67-64-1	270	10	1
10949	Benzene	71-43-2	27	0.7	1
10949	Bromobenzene	108-86-1	20	1	1
10949	Bromochloromethane	74-97-5	27	1	1
10949	Bromodichloromethane	75-27-4	27	1	1
10949	Bromoform	75-25-2	21	1	1
10949	Bromomethane	74-83-9	25	3	1
10949	2-Butanone	78-93-3	220	6	1
10949	n-Butylbenzene	104-51-8	18	1	1
10949	sec-Butylbenzene	135-98-8	20	1	1
10949	tert-Butylbenzene	98-06-6	19	1	1
10949	Carbon Disulfide	75-15-0	24	1	1
10949	Carbon Tetrachloride	56-23-5	30	1	1
10949	Chlorobenzene	108-90-7	22	1	1
10949	Chloroethane	75-00-3	23	3	1
10949	Chloroform	67-66-3	29	1	1
10949	Chloromethane	74-87-3	27	3	1
10949	2-Chlorotoluene	95-49-8	19	1	1
10949	4-Chlorotoluene	106-43-4	19	1	1
10949	Cyclohexane	110-82-7	26	1	1
10949	1,2-Dibromo-3-chloropropane	96-12-8	20	3	1
10949	Dibromochloromethane	124-48-1	24	1	1
10949	1,2-Dibromoethane	106-93-4	24	1	1
10949	Dibromomethane	74-95-3	26	1	1
10949	1,2-Dichlorobenzene	95-50-1	16	1	1
10949	1,3-Dichlorobenzene	541-73-1	17	1	1
10949	1,4-Dichlorobenzene	106-46-7	17	1	1
10949	Dichlorodifluoromethane	75-71-8	30	3	1
10949	1,1-Dichloroethane	75-34-3	29	1	1
10949	1,2-Dichloroethane	107-06-2	32	1	1
10949	1,1-Dichloroethene	75-35-4	27	1	1
10949	cis-1,2-Dichloroethene	156-59-2	27	1	1
10949	trans-1,2-Dichloroethene	156-60-5	26	1	1
10949	1,2-Dichloropropane	78-87-5	27	1	1
10949	1,3-Dichloropropane	142-28-9	26	1	1
10949	2,2-Dichloropropane	594-20-7	30	1	1
10949	1,1-Dichloropropene	563-58-6	27	1	1
10949	cis-1,3-Dichloropropene	10061-01-5	24	1	1
10949	trans-1,3-Dichloropropene	10061-02-6	24	1	1
10949	Ethylbenzene	100-41-4	22	1	1
10949	Freon 113	76-13-1	28	3	1
10949	Hexachlorobutadiene	87-68-3	17	3	1
10949	2-Hexanone	591-78-6	120	4	1
10949	Isopropylbenzene	98-82-8	22	1	1
10949	p-Isopropyltoluene	99-87-6	19	1	1
10949	Methyl Acetate	79-20-9	30	3	1
10949	Methyl Tertiary Butyl Ether	1634-04-4	28	0.7	1
10949	4-Methyl-2-pentanone	108-10-1	140	4	1
10949	Methylcyclohexane	108-87-2	24	1	1
10949	Methylene Chloride	75-09-2	26	3	1
10949	Naphthalene	91-20-3	10	1	1

Sample Description: S18-SD01 Matrix Spike Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526785
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 09:45 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S1- SDG#: DHR13-01MS

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	21		1	1
10949	Styrene	100-42-5	19		1	1
10949	1,1,1,2-Tetrachloroethane	630-20-6	23		1	1
10949	1,1,2,2-Tetrachloroethane	79-34-5	22		1	1
10949	Tetrachloroethene	127-18-4	24		1	1
10949	Toluene	108-88-3	24		1	1
10949	1,2,3-Trichlorobenzene	87-61-6	10		1	1
10949	1,2,4-Trichlorobenzene	120-82-1	11		1	1
10949	1,1,1-Trichloroethane	71-55-6	29		1	1
10949	1,1,2-Trichloroethane	79-00-5	25		1	1
10949	Trichloroethene	79-01-6	25		1	1
10949	Trichlorofluoromethane	75-69-4	43		3	1
10949	1,2,3-Trichloropropane	96-18-4	24		1	1
10949	1,2,4-Trimethylbenzene	95-63-6	18		1	1
10949	1,3,5-Trimethylbenzene	108-67-8	19		1	1
10949	Vinyl Chloride	75-01-4	28		1	1
10949	m+p-Xylene	179601-23-1	43		1	1
10949	o-Xylene	95-47-6	21		1	1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	2,300		48	10
10727	Acenaphthylene	208-96-8	2,300		48	10
10727	Anthracene	120-12-7	2,500		48	10
10727	Benzo(a)anthracene	56-55-3	2,800		48	10
10727	Benzo(a)pyrene	50-32-8	2,900		48	10
10727	Benzo(b)fluoranthene	205-99-2	3,200		48	10
10727	Benzo(g,h,i)perylene	191-24-2	2,700		48	10
10727	Benzo(k)fluoranthene	207-08-9	2,800		48	10
10727	Benzyl alcohol	100-51-6	2,400	U	2,400	10
10727	1,1'-Biphenyl	92-52-4	3,900		240	10
10727	4-Bromophenyl-phenylether	101-55-3	2,200		240	10
10727	Butylbenzylphthalate	85-68-7	2,100	J	950	10
10727	Di-n-butylphthalate	84-74-2	2,400	J	950	10
10727	Carbazole	86-74-8	2,200		240	10
10727	4-Chloro-3-methylphenol	59-50-7	2,300		240	10
10727	4-Chloroaniline	106-47-8	720		240	10
10727	bis(2-Chloroethoxy)methane	111-91-1	2,200		240	10
10727	bis(2-Chloroethyl)ether	111-44-4	2,500		240	10
10727	bis(2-Chloroisopropyl)ether	39638-32-9	2,000		240	10
10727	2-Chloronaphthalene	91-58-7	2,300		100	10
10727	2-Chlorophenol	95-57-8	2,300		240	10
10727	4-Chlorophenyl-phenylether	7005-72-3	2,100		240	10
10727	Chrysene	218-01-9	2,700		48	10
10727	Dibenz(a,h)anthracene	53-70-3	2,400		48	10
10727	Dibenzofuran	132-64-9	2,300		240	10
10727	3,3'-Dichlorobenzidine	91-94-1	1,400	U	1,400	10
10727	2,4-Dichlorophenol	120-83-2	2,400		240	10
10727	Diethylphthalate	84-66-2	2,100	J	950	10
10727	2,4-Dimethylphenol	105-67-9	2,200		240	10
10727	Dimethylphthalate	131-11-3	2,200	J	950	10
10727	4,6-Dinitro-2-methylphenol	534-52-1	2,400	J	2,400	10

Sample Description: S18-SD01 Matrix Spike Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526785
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 09:45 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S1- SDG#: DHR13-01MS

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	4,300	U	4,300	10
10727	2,4-Dinitrotoluene	121-14-2	2,000	J	950	10
10727	2,6-Dinitrotoluene	606-20-2	2,000		240	10
10727	1,4-Dioxane	123-91-1	1,600	J	1,400	10
10727	bis(2-Ethylhexyl)phthalate	117-81-7	2,300	J	950	10
10727	Fluoranthene	206-44-0	4,700		48	10
10727	Fluorene	86-73-7	3,000		48	10
10727	Hexachlorobenzene	118-74-1	2,200		48	10
10727	Hexachlorocyclopentadiene	77-47-4	2,400	U	2,400	10
10727	Hexachloroethane	67-72-1	690	J	480	10
10727	Indeno(1,2,3-cd)pyrene	193-39-5	2,600		48	10
10727	Isophorone	78-59-1	2,100		240	10
10727	2-Methylnaphthalene	91-57-6	2,300		48	10
10727	2-Methylphenol	95-48-7	2,200		240	10
10727	4-Methylphenol	106-44-5	2,000		240	10
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	3,400		240	10
10727	3-Nitroaniline	99-09-2	1,500	J	950	10
10727	4-Nitroaniline	100-01-6	2,300	J	950	10
10727	Nitrobenzene	98-95-3	2,300		240	10
10727	2-Nitrophenol	88-75-5	720		240	10
10727	4-Nitrophenol	100-02-7	2,400	U	2,400	10
10727	N-Nitroso-di-n-propylamine	621-64-7	2,000		240	10
10727	N-Nitrosodiphenylamine	86-30-6	2,000		240	10
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	2,200	J	950	10
10727	Pentachlorophenol	87-86-5	910	J	480	10
10727	Phenanthrene	85-01-8	3,500		48	10
10727	Phenol	108-95-2	2,400		240	10
10727	Pyrene	129-00-0	3,800		48	10
10727	2,4,5-Trichlorophenol	95-95-4	2,100		240	10
10727	2,4,6-Trichlorophenol	88-06-2	2,000		240	10
	Reporting limits were raised due to interference from the sample matrix.					
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	378		0.0247	1
06949	Cadmium	7440-43-9	7.24		0.0274	1
06951	Chromium	7440-47-3	72.8		0.192	1
06955	Lead	7439-92-1	41.6		0.302	1
06936	Selenium	7782-49-2	20.6		0.933	1
06966	Silver	7440-22-4	6.69		0.114	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	10.5		0.110	2
	SW-846 7471A		**mg/kg**		**mg/kg**	

Sample Description: S18-SD01 Matrix Spike Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526785
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 09:45 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S1- SDG#: DHR13-01MS

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals		**SW-846 7471A**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.244	0.0093	1
Wet Chemistry		**SM20 2540 G**	**%**	**%**	
00118	Moisture	n.a.	29.9	0.50	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	B120241AA	01/24/2012 14:24	Chelsea B Eastep	1
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	1	201201926615	01/19/2012 21:48	Scott W Freisher	n.a.
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	2	201201926615	01/19/2012 21:48	Scott W Freisher	n.a.
06646	GC/MS HL Bulk Sample Prep	SW-846 5035A Modified	1	201201926615	01/19/2012 21:20	Scott W Freisher	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	12020SLA026	01/23/2012 15:17	Matthew S Woods	10
10809	BNA Soil Microwave	SW-846 3546	1	12020SLA026	01/20/2012 14:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	120245708001	01/24/2012 23:50	John W Yanzuk II	1
06949	Cadmium	SW-846 6010B	1	120245708001	01/24/2012 23:50	John W Yanzuk II	1
06951	Chromium	SW-846 6010B	1	120245708001	01/24/2012 23:50	John W Yanzuk II	1
06955	Lead	SW-846 6010B	1	120245708001	01/24/2012 23:50	John W Yanzuk II	1
06936	Selenium	SW-846 6010B	1	120245708001	01/24/2012 23:50	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	120245708001	01/24/2012 23:50	John W Yanzuk II	1
06125	Arsenic	SW-846 6020	1	120245708001A	01/26/2012 11:07	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	120255711001	01/25/2012 19:01	Nelli S Markaryan	1
05708	SW SW846 ICP/ICP MS Digest	SW-846 3050B	1	120245708001	01/24/2012 12:28	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	120245711001	01/24/2012 14:40	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	2	120255711001	01/25/2012 12:50	James L Mertz	1
00118	Moisture	SM20 2540 G	1	12025820002B	01/25/2012 18:32	Scott W Freisher	1

DHR13 8828

Sample Description: S18-SD01 Matrix Spike Dup Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526786
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 09:45 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S1- SDG#: DHR13-01MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	SW-846 8260B		ug/kg	ug/kg	
10949	Acetone	67-64-1	290	10	1.01
10949	Benzene	71-43-2	30	0.7	1.01
10949	Bromobenzene	108-86-1	33	1	1.01
10949	Bromochloromethane	74-97-5	30	1	1.01
10949	Bromodichloromethane	75-27-4	29	1	1.01
10949	Bromoform	75-25-2	23	1	1.01
10949	Bromomethane	74-83-9	27	3	1.01
10949	2-Butanone	78-93-3	220	6	1.01
10949	n-Butylbenzene	104-51-8	32	1	1.01
10949	sec-Butylbenzene	135-98-8	36	1	1.01
10949	tert-Butylbenzene	98-06-6	34	1	1.01
10949	Carbon Disulfide	75-15-0	28	1	1.01
10949	Carbon Tetrachloride	56-23-5	34	1	1.01
10949	Chlorobenzene	108-90-7	29	1	1.01
10949	Chloroethane	75-00-3	26	3	1.01
10949	Chloroform	67-66-3	32	1	1.01
10949	Chloromethane	74-87-3	30	3	1.01
10949	2-Chlorotoluene	95-49-8	32	1	1.01
10949	4-Chlorotoluene	106-43-4	31	1	1.01
10949	Cyclohexane	110-82-7	32	1	1.01
10949	1,2-Dibromo-3-chloropropane	96-12-8	28	3	1.01
10949	Dibromochloromethane	124-48-1	27	1	1.01
10949	1,2-Dibromoethane	106-93-4	27	1	1.01
10949	Dibromomethane	74-95-3	29	1	1.01
10949	1,2-Dichlorobenzene	95-50-1	27	1	1.01
10949	1,3-Dichlorobenzene	541-73-1	29	1	1.01
10949	1,4-Dichlorobenzene	106-46-7	28	1	1.01
10949	Dichlorodifluoromethane	75-71-8	33	3	1.01
10949	1,1-Dichloroethane	75-34-3	32	1	1.01
10949	1,2-Dichloroethane	107-06-2	35	1	1.01
10949	1,1-Dichloroethene	75-35-4	30	1	1.01
10949	cis-1,2-Dichloroethene	156-59-2	30	1	1.01
10949	trans-1,2-Dichloroethene	156-60-5	29	1	1.01
10949	1,2-Dichloropropane	78-87-5	30	1	1.01
10949	1,3-Dichloropropane	142-28-9	30	1	1.01
10949	2,2-Dichloropropane	594-20-7	33	1	1.01
10949	1,1-Dichloropropene	563-58-6	32	1	1.01
10949	cis-1,3-Dichloropropene	10061-01-5	27	1	1.01
10949	trans-1,3-Dichloropropene	10061-02-6	28	1	1.01
10949	Ethylbenzene	100-41-4	30	1	1.01
10949	Freon 113	76-13-1	33	3	1.01
10949	Hexachlorobutadiene	87-68-3	34	3	1.01
10949	2-Hexanone	591-78-6	130	4	1.01
10949	Isopropylbenzene	98-82-8	32	1	1.01
10949	p-Isopropyltoluene	99-87-6	34	1	1.01
10949	Methyl Acetate	79-20-9	30	3	1.01
10949	Methyl Tertiary Butyl Ether	1634-04-4	30	0.7	1.01
10949	4-Methyl-2-pentanone	108-10-1	140	4	1.01
10949	Methylcyclohexane	108-87-2	27	1	1.01
10949	Methylene Chloride	75-09-2	32	3	1.01
10949	Naphthalene	91-20-3	16	1	1.01

DHR13 0021

Sample Description: S18-SD01 Matrix Spike Dup Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526786
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 09:45 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S1- SDG#: DHR13-01MSD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	36		1	1.01
10949	Styrene	100-42-5	26		1	1.01
10949	1,1,1,2-Tetrachloroethane	630-20-6	30		1	1.01
10949	1,1,2,2-Tetrachloroethane	79-34-5	32		1	1.01
10949	Tetrachloroethene	127-18-4	31		1	1.01
10949	Toluene	108-88-3	30		1	1.01
10949	1,2,3-Trichlorobenzene	87-61-6	17		1	1.01
10949	1,2,4-Trichlorobenzene	120-82-1	18		1	1.01
10949	1,1,1-Trichloroethane	71-55-6	32		1	1.01
10949	1,1,2-Trichloroethane	79-00-5	29		1	1.01
10949	Trichloroethene	79-01-6	29		1	1.01
10949	Trichlorofluoromethane	75-69-4	35		3	1.01
10949	1,2,3-Trichloropropane	96-18-4	35		1	1.01
10949	1,2,4-Trimethylbenzene	95-63-6	32		1	1.01
10949	1,3,5-Trimethylbenzene	108-67-8	33		1	1.01
10949	Vinyl Chloride	75-01-4	30		1	1.01
10949	m+p-Xylene	179601-23-1	58		1	1.01
10949	o-Xylene	95-47-6	27		1	1.01
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	2,400		48	10
10727	Acenaphthylene	208-96-8	2,000		48	10
10727	Anthracene	120-12-7	2,200		48	10
10727	Benzo(a)anthracene	56-55-3	2,500		48	10
10727	Benzo(a)pyrene	50-32-8	2,500		48	10
10727	Benzo(b)fluoranthene	205-99-2	2,600		48	10
10727	Benzo(g,h,i)perylene	191-24-2	2,200		48	10
10727	Benzo(k)fluoranthene	207-08-9	2,300		48	10
10727	Benzyl alcohol	100-51-6	2,400	U	2,400	10
10727	1,1'-Biphenyl	92-52-4	3,000		240	10
10727	4-Bromophenyl-phenylether	101-55-3	2,100		240	10
10727	Butylbenzylphthalate	85-68-7	1,800	J	950	10
10727	Di-n-butylphthalate	84-74-2	2,000	J	950	10
10727	Carbazole	86-74-8	2,000		240	10
10727	4-Chloro-3-methylphenol	59-50-7	1,900		240	10
10727	4-Chloroaniline	106-47-8	1,300		240	10
10727	bis(2-Chloroethoxy)methane	111-91-1	1,800		240	10
10727	bis(2-Chloroethyl)ether	111-44-4	2,000		240	10
10727	bis(2-Chloroisopropyl)ether	39638-32-9	1,700		240	10
10727	2-Chloronaphthalene	91-58-7	1,800		100	10
10727	2-Chlorophenol	95-57-8	1,800		240	10
10727	4-Chlorophenyl-phenylether	7005-72-3	2,000		240	10
10727	Chrysene	218-01-9	2,500		48	10
10727	Dibenz(a,h)anthracene	53-70-3	1,900		48	10
10727	Dibenzofuran	132-64-9	2,000		240	10
10727	3,3'-Dichlorobenzidine	91-94-1	1,400	U	1,400	10
10727	2,4-Dichlorophenol	120-83-2	1,900		240	10
10727	Diethylphthalate	84-66-2	1,900	J	950	10
10727	2,4-Dimethylphenol	105-67-9	1,800		240	10
10727	Dimethylphthalate	131-11-3	1,900	J	950	10
10727	4,6-Dinitro-2-methylphenol	534-52-1	2,700	J	2,400	10

DHR13 0022

Sample Description: S18-SD01 Matrix Spike Dup Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526786
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 09:45 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S1- SDG#: DHR13-01MSD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	2,4-Dinitrophenol	51-28-5	4,300	U	4,300	10
10727	2,4-Dinitrotoluene	121-14-2	1,800	J	950	10
10727	2,6-Dinitrotoluene	606-20-2	1,900		240	10
10727	1,4-Dioxane	123-91-1	1,400	U	1,400	10
10727	bis(2-Ethylhexyl)phthalate	117-81-7	2,100	J	950	10
10727	Fluoranthene	206-44-0	4,000		48	10
10727	Fluorene	86-73-7	2,400		48	10
10727	Hexachlorobenzene	118-74-1	2,000		48	10
10727	Hexachlorocyclopentadiene	77-47-4	2,400	U	2,400	10
10727	Hexachloroethane	67-72-1	1,300	J	480	10
10727	Indeno(1,2,3-cd)pyrene	193-39-5	2,200		48	10
10727	Isophorone	78-59-1	1,800		240	10
10727	2-Methylnaphthalene	91-57-6	2,000		48	10
10727	2-Methylphenol	95-48-7	1,900		240	10
10727	4-Methylphenol	106-44-5	1,800		240	10
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	2,500		240	10
10727	3-Nitroaniline	99-09-2	1,700	J	950	10
10727	4-Nitroaniline	100-01-6	2,800		950	10
10727	Nitrobenzene	98-95-3	1,900		240	10
10727	2-Nitrophenol	88-75-5	1,500		240	10
10727	4-Nitrophenol	100-02-7	2,400	U	2,400	10
10727	N-Nitroso-di-n-propylamine	621-64-7	1,600		240	10
10727	N-Nitrosodiphenylamine	86-30-6	1,900		240	10
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	1,900	J	950	10
10727	Pentachlorophenol	87-86-5	1,300	J	480	10
10727	Phenanthrene	85-01-8	3,000		48	10
10727	Phenol	108-95-2	2,000		240	10
10727	Pyrene	129-00-0	3,300		48	10
10727	2,4,5-Trichlorophenol	95-95-4	1,800		240	10
10727	2,4,6-Trichlorophenol	88-06-2	1,900		240	10
	Reporting limits were raised due to interference from the sample matrix.					
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	392		0.0252	1
06949	Cadmium	7440-43-9	10.0		0.0280	1
06951	Chromium	7440-47-3	82.2		0.196	1
06955	Lead	7439-92-1	54.4		0.308	1
06936	Selenium	7782-49-2	23.3		0.951	1
06966	Silver	7440-22-4	6.87		0.116	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	10.4		0.112	2
	SW-846 7471A		**mg/kg**		**mg/kg**	

DHR13 0823

Sample Description: S18-SD01 Matrix Spike Dup Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526786
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 09:45 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S1- SDG#: DHR13-01MSD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals		**SW-846 7471A**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.255	0.0099	1
Wet Chemistry		**SM20 2540 G**	**%**	**%**	
00118	Moisture	n.a.	29.9	0.50	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	B120241AA	01/24/2012 14:47	Chelsea B Eastep	1.01
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	1	201201926615	01/19/2012 21:48	Scott W Freisher	n.a.
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	2	201201926615	01/19/2012 21:48	Scott W Freisher	n.a.
06646	GC/MS HL Bulk Sample Prep	SW-846 5035A Modified	1	201201926615	01/19/2012 21:22	Scott W Freisher	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	12020SLA026	01/23/2012 15:41	Matthew S Woods	10
10809	BNA Soil Microwave	SW-846 3546	1	12020SLA026	01/20/2012 14:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	120245708001	01/24/2012 23:54	John W Yanzuk II	1
06949	Cadmium	SW-846 6010B	1	120245708001	01/24/2012 23:54	John W Yanzuk II	1
06951	Chromium	SW-846 6010B	1	120245708001	01/24/2012 23:54	John W Yanzuk II	1
06955	Lead	SW-846 6010B	1	120245708001	01/24/2012 23:54	John W Yanzuk II	1
06936	Selenium	SW-846 6010B	1	120245708001	01/24/2012 23:54	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	120245708001	01/24/2012 23:54	John W Yanzuk II	1
06125	Arsenic	SW-846 6020	1	120245708001A	01/26/2012 11:08	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	120255711001	01/25/2012 19:02	Nelli S Markaryan	1
05708	SW SW846 ICP/ICP MS Digest	SW-846 3050B	1	120245708001	01/24/2012 12:28	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	120245711001	01/24/2012 14:40	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	2	120255711001	01/25/2012 12:50	James L Mertz	1
00118	Moisture	SM20 2540 G	1	12025820002B	01/25/2012 18:32	Scott W Freisher	1

DHR13 0824

Sample Description: S18-SD01 Duplicate Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526787
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 09:45 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S1- SDG#: DHR13-01DUP

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
Metals		**SW-846 6010B**	**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	108		0.0254	1
06949	Cadmium	7440-43-9	0.740		0.0282	1
06951	Chromium	7440-47-3	53.6		0.198	1
06955	Lead	7439-92-1	23.2		0.311	1
06936	Selenium	7782-49-2	2.07	J	0.960	1
06966	Silver	7440-22-4	0.468	J	0.117	1
		SW-846 6020	**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	6.93		0.113	2
		SW-846 7471A	**mg/kg**		**mg/kg**	
00159	Mercury	7439-97-6	0.0172	J	0.0098	1
Wet Chemistry		**SM20 2540 G**	**%**		**%**	
00118	Moisture	n.a.	29.9		0.50	1
00121	Moisture Duplicate	n.a.	34.2		0.50	1

The duplicate moisture value is provided to assess the precision of the moisture test. For comparability purposes, the initial moisture determination is the value used to perform dry weight calculations.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06946	Barium	SW-846 6010B	1	120245708001	01/24/2012 23:47	John W Yanzuk II	1
06949	Cadmium	SW-846 6010B	1	120245708001	01/24/2012 23:47	John W Yanzuk II	1
06951	Chromium	SW-846 6010B	1	120245708001	01/24/2012 23:47	John W Yanzuk II	1
06955	Lead	SW-846 6010B	1	120245708001	01/24/2012 23:47	John W Yanzuk II	1
06936	Selenium	SW-846 6010B	1	120245708001	01/24/2012 23:47	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	120245708001	01/24/2012 23:47	John W Yanzuk II	1
06125	Arsenic	SW-846 6020	1	120245708001A	01/26/2012 11:05	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	120255711001	01/25/2012 19:00	Nelli S Markaryan	1
05708	SW SW846 ICP/ICP MS Digest	SW-846 3050B	1	120245708001	01/24/2012 12:28	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	120245711001	01/24/2012 14:40	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	2	120255711001	01/25/2012 12:50	James L Mertz	1
00118	Moisture	SM20 2540 G	1	12025820002B	01/25/2012 18:32	Scott W Freisher	1
00121	Moisture Duplicate	SM20 2540 G	1	12025820002B	01/25/2012 18:32	Scott W Freisher	1

DHR13 0025

Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster PA, 17605-2425
717-656-2300 Fax: 717-656-2681

Sample Description: S18-SD02 Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526788
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 10:00 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S2- SDG#: DHR13-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	SW-846 8260B		ug/kg		ug/kg	
10949	Acetone	67-64-1	24	J	12	1.07
10949	Benzene	71-43-2	0.8	U	0.8	1.07
10949	Bromobenzene	108-86-1	2	U	2	1.07
10949	Bromochloromethane	74-97-5	2	U	2	1.07
10949	Bromodichloromethane	75-27-4	2	U	2	1.07
10949	Bromoform	75-25-2	2	U	2	1.07
10949	Bromomethane	74-83-9	3	U	3	1.07
10949	2-Butanone	78-93-3	7	U	7	1.07
10949	n-Butylbenzene	104-51-8	2	U	2	1.07
10949	sec-Butylbenzene	135-98-8	2	U	2	1.07
10949	tert-Butylbenzene	98-06-6	2	U	2	1.07
10949	Carbon Disulfide	75-15-0	2	U	2	1.07
10949	Carbon Tetrachloride	56-23-5	2	U	2	1.07
10949	Chlorobenzene	108-90-7	2	U	2	1.07
10949	Chloroethane	75-00-3	3	U	3	1.07
10949	Chloroform	67-66-3	2	U	2	1.07
10949	Chloromethane	74-87-3	3	U	3	1.07
10949	2-Chlorotoluene	95-49-8	2	U	2	1.07
10949	4-Chlorotoluene	106-43-4	2	U	2	1.07
10949	Cyclohexane	110-82-7	2	U	2	1.07
10949	1,2-Dibromo-3-chloropropane	96-12-8	3	U	3	1.07
10949	Dibromochloromethane	124-48-1	2	U	2	1.07
10949	1,2-Dibromoethane	106-93-4	2	U	2	1.07
10949	Dibromomethane	74-95-3	2	U	2	1.07
10949	1,2-Dichlorobenzene	95-50-1	2	U	2	1.07
10949	1,3-Dichlorobenzene	541-73-1	2	U	2	1.07
10949	1,4-Dichlorobenzene	106-46-7	2	U	2	1.07
10949	Dichlorodifluoromethane	75-71-8	3	U	3	1.07
10949	1,1-Dichloroethane	75-34-3	2	U	2	1.07
10949	1,2-Dichloroethane	107-06-2	2	U	2	1.07
10949	1,1-Dichloroethene	75-35-4	2	U	2	1.07
10949	cis-1,2-Dichloroethene	156-59-2	2	U	2	1.07
10949	trans-1,2-Dichloroethene	156-60-5	2	U	2	1.07
10949	1,2-Dichloropropane	78-87-5	2	U	2	1.07
10949	1,3-Dichloropropane	142-28-9	2	U	2	1.07
10949	2,2-Dichloropropane	594-20-7	2	U	2	1.07
10949	1,1-Dichloropropene	563-58-6	2	U	2	1.07
10949	cis-1,3-Dichloropropene	10061-01-5	2	U	2	1.07
10949	trans-1,3-Dichloropropene	10061-02-6	2	U	2	1.07
10949	Ethylbenzene	100-41-4	2	U	2	1.07
10949	Freon 113	76-13-1	3	U	3	1.07
10949	Hexachlorobutadiene	87-68-3	3	U	3	1.07
10949	2-Hexanone	591-78-6	5	U	5	1.07
10949	Isopropylbenzene	98-82-8	2	U	2	1.07
10949	p-Isopropyltoluene	99-87-6	2	U	2	1.07
10949	Methyl Acetate	79-20-9	3	U	3	1.07
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.8	U	0.8	1.07
10949	4-Methyl-2-pentanone	108-10-1	5	U	5	1.07
10949	Methylcyclohexane	108-87-2	2	U	2	1.07
10949	Methylene Chloride	75-09-2	3	U	3	1.07
10949	Naphthalene	91-20-3	2	U	2	1.07

DHR13 0026

Sample Description: S18-SD02 Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526788
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 10:00 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S2- SDG#: DHR13-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg		ug/kg	
10949	n-Propylbenzene	103-65-1	2	U	2	1.07
10949	Styrene	100-42-5	2	U	2	1.07
10949	1,1,1,2-Tetrachloroethane	630-20-6	2	U	2	1.07
10949	1,1,2,2-Tetrachloroethane	79-34-5	2	U	2	1.07
10949	Tetrachloroethene	127-18-4	2	U	2	1.07
10949	Toluene	108-88-3	2	U	2	1.07
10949	1,2,3-Trichlorobenzene	87-61-6	2	U	2	1.07
10949	1,2,4-Trichlorobenzene	120-82-1	2	U	2	1.07
10949	1,1,1-Trichloroethane	71-55-6	2	U	2	1.07
10949	1,1,2-Trichloroethane	79-00-5	2	U	2	1.07
10949	Trichloroethene	79-01-6	2	U	2	1.07
10949	Trichlorofluoromethane	75-69-4	3	U	3	1.07
10949	1,2,3-Trichloropropane	96-18-4	2	U	2	1.07
10949	1,2,4-Trimethylbenzene	95-63-6	2	U	2	1.07
10949	1,3,5-Trimethylbenzene	108-67-8	2	U	2	1.07
10949	Vinyl Acetate	108-05-4	3	U	3	1.07
10949	Vinyl Chloride	75-01-4	2	U	2	1.07
10949	m+p-Xylene	179601-23-1	2	U	2	1.07
10949	o-Xylene	95-47-6	2	U	2	1.07
GC/MS Semivolatiles	**SW-846 8270C**		ug/kg		ug/kg	
10727	Acenaphthene	83-32-9	52	U	52	10
10727	Acenaphthylene	208-96-8	52	U	52	10
10727	Anthracene	120-12-7	52	U	52	10
10727	Benzo(a)anthracene	56-55-3	88	J	52	10
10727	Benzo(a)pyrene	50-32-8	97	J	52	10
10727	Benzo(b)fluoranthene	205-99-2	160	J	52	10
10727	Benzo(g,h,i)perylene	191-24-2	98	J	52	10
10727	Benzo(k)fluoranthene	207-08-9	63	J	52	10
10727	Benzyl alcohol	100-51-6	2,600	U	2,600	10
10727	1,1'-Biphenyl	92-52-4	2,300		260	10
10727	4-Bromophenyl-phenylether	101-55-3	260	U	260	10
10727	Butylbenzylphthalate	85-68-7	1,000	U	1,000	10
10727	Di-n-butylphthalate	84-74-2	1,000	U	1,000	10
10727	Carbazole	86-74-8	260	U	260	10
10727	4-Chloro-3-methylphenol	59-50-7	260	U	260	10
10727	4-Chloroaniline	106-47-8	260	U	260	10
10727	bis(2-Chloroethoxy)methane	111-91-1	260	U	260	10
10727	bis(2-Chloroethyl)ether	111-44-4	260	U	260	10
10727	bis(2-Chloroisopropyl)ether	39638-32-9	260	U	260	10
10727	2-Chloronaphthalene	91-58-7	110	U	110	10
10727	2-Chlorophenol	95-57-8	260	U	260	10
10727	4-Chlorophenyl-phenylether	7005-72-3	260	U	260	10
10727	Chrysene	218-01-9	130	J	52	10
10727	Dibenz(a,h)anthracene	53-70-3	52	U	52	10
10727	Dibenzofuran	132-64-9	260	U	260	10
10727	3,3'-Dichlorobenzidine	91-94-1	1,600	U	1,600	10
10727	2,4-Dichlorophenol	120-83-2	260	U	260	10
10727	Diethylphthalate	84-66-2	1,000	U	1,000	10
10727	2,4-Dimethylphenol	105-67-9	260	U	260	10
10727	Dimethylphthalate	131-11-3	1,000	U	1,000	10

DHR13 0827

Sample Description: S18-SD02 Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526788
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 10:00 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S2- SDG#: DHR13-02

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	4,6-Dinitro-2-methylphenol	534-52-1	2,600	U	2,600	10
10727	2,4-Dinitrophenol	51-28-5	4,700	U	4,700	10
10727	2,4-Dinitrotoluene	121-14-2	1,000	U	1,000	10
10727	2,6-Dinitrotoluene	606-20-2	260	U	260	10
10727	1,4-Dioxane	123-91-1	1,600	U	1,600	10
10727	bis(2-Ethylhexyl)phthalate	117-81-7	1,000	U	1,000	10
10727	Fluoranthene	206-44-0	220	J	52	10
10727	Fluorene	86-73-7	52	U	52	10
10727	Hexachlorobenzene	118-74-1	52	U	52	10
10727	Hexachlorocyclopentadiene	77-47-4	2,600	U	2,600	10
10727	Hexachloroethane	67-72-1	520	U	520	10
10727	Indeno(1,2,3-cd)pyrene	193-39-5	85	J	52	10
10727	Isophorone	78-59-1	260	U	260	10
10727	2-Methylnaphthalene	91-57-6	52	U	52	10
10727	2-Methylphenol	95-48-7	260	U	260	10
10727	4-Methylphenol	106-44-5	260	U	260	10
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	260	U	260	10
10727	3-Nitroaniline	99-09-2	1,000	U	1,000	10
10727	4-Nitroaniline	100-01-6	1,000	U	1,000	10
10727	Nitrobenzene	98-95-3	260	U	260	10
10727	2-Nitrophenol	88-75-5	260	U	260	10
10727	4-Nitrophenol	100-02-7	2,600	U	2,600	10
10727	N-Nitroso-di-n-propylamine	621-64-7	260	U	260	10
10727	N-Nitrosodiphenylamine	86-30-6	260	U	260	10
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	1,000	U	1,000	10
10727	Pentachlorophenol	87-86-5	520	U	520	10
10727	Phenanthrene	85-01-8	130	J	52	10
10727	Phenol	108-95-2	260	U	260	10
10727	Pyrene	129-00-0	200	J	52	10
10727	2,4,5-Trichlorophenol	95-95-4	260	U	260	10
10727	2,4,6-Trichlorophenol	88-06-2	260	U	260	10
	Reporting limits were raised due to interference from the sample matrix.					
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	58.1		0.0283	1
06949	Cadmium	7440-43-9	0.188	J	0.0314	1
06951	Chromium	7440-47-3	29.0		0.220	1
06955	Lead	7439-92-1	14.9		0.345	1
06936	Selenium	7782-49-2	2.90	J	1.07	1
06966	Silver	7440-22-4	0.130	U	0.130	1
	SW-846 6020		**mg/kg**		**mg/kg**	DHR13-0828
06125	Arsenic	7440-38-2	9.45		0.126	2

Sample Description: S18-SD02 Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526788
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 10:00 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S2- SDG#: DHR13-02

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 7471A**		mg/kg	mg/kg	
00159	Mercury	7439-97-6	0.0139 J	0.0103	1
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	36.3	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	B120241AA	01/24/2012 17:22	Chelsea B Eastep	1.07
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	1	201201926615	01/19/2012 21:48	Scott W Freisher	n.a.
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	2	201201926615	01/19/2012 21:48	Scott W Freisher	n.a.
06646	GC/MS HL Bulk Sample Prep	SW-846 5035A Modified	1	201201926615	01/19/2012 21:24	Scott W Freisher	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	12020SLA026	01/23/2012 16:05	Matthew S Woods	10
10809	BNA Soil Microwave	SW-846 3546	1	12020SLA026	01/20/2012 14:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	120245708001	01/25/2012 00:05	John W Yanzuk II	1
06949	Cadmium	SW-846 6010B	1	120245708001	01/25/2012 00:05	John W Yanzuk II	1
06951	Chromium	SW-846 6010B	1	120245708001	01/25/2012 00:05	John W Yanzuk II	1
06955	Lead	SW-846 6010B	1	120245708001	01/25/2012 00:05	John W Yanzuk II	1
06936	Selenium	SW-846 6010B	1	120245708001	01/25/2012 00:05	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	120245708001	01/25/2012 00:05	John W Yanzuk II	1
06125	Arsenic	SW-846 6020	1	120245708001A	01/26/2012 11:14	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	120255711001	01/25/2012 19:03	Nelli S Markaryan	1
05708	SW SW846 ICP/ICP MS Digest	SW-846 3050B	1	120245708001	01/24/2012 12:28	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	120245711001	01/24/2012 14:40	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	2	120255711001	01/25/2012 12:50	James L Mertz	1
00111	Moisture	SM20 2540 G	1	12025820002B	01/25/2012 18:32	Scott W Freisher	1

DHR13 0029

Sample Description: HGR-011812-FD02 Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526789
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 10:00 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

FD2-- SDG#: DHR13-03FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	SW-846 8260B		ug/kg		ug/kg	
10949	Acetone	67-64-1	27	J	11	0.98
10949	Benzene	71-43-2	0.8	U	0.8	0.98
10949	Bromobenzene	108-86-1	2	U	2	0.98
10949	Bromochloromethane	74-97-5	2	U	2	0.98
10949	Bromodichloromethane	75-27-4	2	U	2	0.98
10949	Bromoform	75-25-2	2	U	2	0.98
10949	Bromomethane	74-83-9	3	U	3	0.98
10949	2-Butanone	78-93-3	7	J	6	0.98
10949	n-Butylbenzene	104-51-8	2	U	2	0.98
10949	sec-Butylbenzene	135-98-8	2	U	2	0.98
10949	tert-Butylbenzene	98-06-6	2	U	2	0.98
10949	Carbon Disulfide	75-15-0	2	U	2	0.98
10949	Carbon Tetrachloride	56-23-5	2	U	2	0.98
10949	Chlorobenzene	108-90-7	2	U	2	0.98
10949	Chloroethane	75-00-3	3	U	3	0.98
10949	Chloroform	67-66-3	2	U	2	0.98
10949	Chloromethane	74-87-3	3	U	3	0.98
10949	2-Chlorotoluene	95-49-8	2	U	2	0.98
10949	4-Chlorotoluene	106-43-4	2	U	2	0.98
10949	Cyclohexane	110-82-7	2	U	2	0.98
10949	1,2-Dibromo-3-chloropropane	96-12-8	3	U	3	0.98
10949	Dibromochloromethane	124-48-1	2	U	2	0.98
10949	1,2-Dibromoethane	106-93-4	2	U	2	0.98
10949	Dibromomethane	74-95-3	2	U	2	0.98
10949	1,2-Dichlorobenzene	95-50-1	2	U	2	0.98
10949	1,3-Dichlorobenzene	541-73-1	2	U	2	0.98
10949	1,4-Dichlorobenzene	106-46-7	2	U	2	0.98
10949	Dichlorodifluoromethane	75-71-8	3	U	3	0.98
10949	1,1-Dichloroethane	75-34-3	2	U	2	0.98
10949	1,2-Dichloroethane	107-06-2	2	U	2	0.98
10949	1,1-Dichloroethene	75-35-4	2	U	2	0.98
10949	cis-1,2-Dichloroethene	156-59-2	2	U	2	0.98
10949	trans-1,2-Dichloroethene	156-60-5	2	U	2	0.98
10949	1,2-Dichloropropane	78-87-5	2	U	2	0.98
10949	1,3-Dichloropropane	142-28-9	2	U	2	0.98
10949	2,2-Dichloropropane	594-20-7	2	U	2	0.98
10949	1,1-Dichloropropene	563-58-6	2	U	2	0.98
10949	cis-1,3-Dichloropropene	10061-01-5	2	U	2	0.98
10949	trans-1,3-Dichloropropene	10061-02-6	2	U	2	0.98
10949	Ethylbenzene	100-41-4	2	U	2	0.98
10949	Freon 113	76-13-1	3	U	3	0.98
10949	Hexachlorobutadiene	87-68-3	3	U	3	0.98
10949	2-Hexanone	591-78-6	5	U	5	0.98
10949	Isopropylbenzene	98-82-8	2	U	2	0.98
10949	p-Isopropyltoluene	99-87-6	2	U	2	0.98
10949	Methyl Acetate	79-20-9	3	U	3	0.98
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.8	U	0.8	0.98
10949	4-Methyl-2-pentanone	108-10-1	5	U	5	0.98
10949	Methylcyclohexane	108-87-2	2	U	2	0.98
10949	Methylene Chloride	75-09-2	3	U	3	0.98
10949	Naphthalene	91-20-3	2	U	2	0.98

DHR13-03FD

Sample Description: HGR-011812-FD02 Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526789
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 10:00 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

FD2-- SDG#: DHR13-03FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	2	U	2	0.98
10949	Styrene	100-42-5	2	U	2	0.98
10949	1,1,1,2-Tetrachloroethane	630-20-6	2	U	2	0.98
10949	1,1,2,2-Tetrachloroethane	79-34-5	2	U	2	0.98
10949	Tetrachloroethene	127-18-4	2	U	2	0.98
10949	Toluene	108-88-3	2	U	2	0.98
10949	1,2,3-Trichlorobenzene	87-61-6	2	U	2	0.98
10949	1,2,4-Trichlorobenzene	120-82-1	2	U	2	0.98
10949	1,1,1-Trichloroethane	71-55-6	2	U	2	0.98
10949	1,1,2-Trichloroethane	79-00-5	2	U	2	0.98
10949	Trichloroethene	79-01-6	2	U	2	0.98
10949	Trichlorofluoromethane	75-69-4	3	U	3	0.98
10949	1,2,3-Trichloropropane	96-18-4	2	U	2	0.98
10949	1,2,4-Trimethylbenzene	95-63-6	2	U	2	0.98
10949	1,3,5-Trimethylbenzene	108-67-8	2	U	2	0.98
10949	Vinyl Acetate	108-05-4	3	U	3	0.98
10949	Vinyl Chloride	75-01-4	2	U	2	0.98
10949	m+p-Xylene	179601-23-1	2	U	2	0.98
10949	o-Xylene	95-47-6	2	U	2	0.98
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	52	U	52	10
10727	Acenaphthylene	208-96-8	52	U	52	10
10727	Anthracene	120-12-7	52	U	52	10
10727	Benzo(a)anthracene	56-55-3	130	J	52	10
10727	Benzo(a)pyrene	50-32-8	110	J	52	10
10727	Benzo(b)fluoranthene	205-99-2	210	J	52	10
10727	Benzo(g,h,i)perylene	191-24-2	92	J	52	10
10727	Benzo(k)fluoranthene	207-08-9	68	J	52	10
10727	Benzyl alcohol	100-51-6	2,600	U	2,600	10
10727	1,1'-Biphenyl	92-52-4	2,700		260	10
10727	4-Bromophenyl-phenylether	101-55-3	260	U	260	10
10727	Butylbenzylphthalate	85-68-7	1,000	U	1,000	10
10727	Di-n-butylphthalate	84-74-2	1,000	U	1,000	10
10727	Carbazole	86-74-8	260	U	260	10
10727	4-Chloro-3-methylphenol	59-50-7	260	U	260	10
10727	4-Chloroaniline	106-47-8	260	U	260	10
10727	bis(2-Chloroethoxy)methane	111-91-1	260	U	260	10
10727	bis(2-Chloroethyl)ether	111-44-4	260	U	260	10
10727	bis(2-Chloroisopropyl)ether	39638-32-9	260	U	260	10
10727	2-Chloronaphthalene	91-58-7	110	U	110	10
10727	2-Chlorophenol	95-57-8	260	U	260	10
10727	4-Chlorophenyl-phenylether	7005-72-3	260	U	260	10
10727	Chrysene	218-01-9	160	J	52	10
10727	Dibenz(a,h)anthracene	53-70-3	52	U	52	10
10727	Dibenzofuran	132-64-9	260	U	260	10
10727	3,3'-Dichlorobenzidine	91-94-1	1,600	U	1,600	10
10727	2,4-Dichlorophenol	120-83-2	260	U	260	10
10727	Diethylphthalate	84-66-2	1,000	U	1,000	10
10727	2,4-Dimethylphenol	105-67-9	260	U	260	10
10727	Dimethylphthalate	131-11-3	1,000	U	1,000	10

DHR13 0031

Sample Description: HGR-011812-FD02 Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526789
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 10:00 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

FD2-- SDG#: DHR13-03FD

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	4,6-Dinitro-2-methylphenol	534-52-1	2,600	U	2,600	10
10727	2,4-Dinitrophenol	51-28-5	4,700	U	4,700	10
10727	2,4-Dinitrotoluene	121-14-2	1,000	U	1,000	10
10727	2,6-Dinitrotoluene	606-20-2	260	U	260	10
10727	1,4-Dioxane	123-91-1	1,600	U	1,600	10
10727	bis(2-Ethylhexyl)phthalate	117-81-7	1,000	U	1,000	10
10727	Fluoranthene	206-44-0	270		52	10
10727	Fluorene	86-73-7	52	U	52	10
10727	Hexachlorobenzene	118-74-1	52	U	52	10
10727	Hexachlorocyclopentadiene	77-47-4	2,600	U	2,600	10
10727	Hexachloroethane	67-72-1	520	U	520	10
10727	Indeno(1,2,3-cd)pyrene	193-39-5	98	J	52	10
10727	Isophorone	78-59-1	260	U	260	10
10727	2-Methylnaphthalene	91-57-6	52	U	52	10
10727	2-Methylphenol	95-48-7	260	U	260	10
10727	4-Methylphenol	106-44-5	260	U	260	10
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	260	U	260	10
10727	3-Nitroaniline	99-09-2	1,000	U	1,000	10
10727	4-Nitroaniline	100-01-6	1,000	U	1,000	10
10727	Nitrobenzene	98-95-3	260	U	260	10
10727	2-Nitrophenol	88-75-5	260	U	260	10
10727	4-Nitrophenol	100-02-7	2,600	U	2,600	10
10727	N-Nitroso-di-n-propylamine	621-64-7	260	U	260	10
10727	N-Nitrosodiphenylamine	86-30-6	260	U	260	10
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	1,000	U	1,000	10
10727	Pentachlorophenol	87-86-5	520	U	520	10
10727	Phenanthrene	85-01-8	170	J	52	10
10727	Phenol	108-95-2	260	U	260	10
10727	Pyrene	129-00-0	230	J	52	10
10727	2,4,5-Trichlorophenol	95-95-4	260	U	260	10
10727	2,4,6-Trichlorophenol	88-06-2	260	U	260	10
	Reporting limits were raised due to interference from the sample matrix.					
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	64.1		0.0277	1
06949	Cadmium	7440-43-9	0.269	J	0.0307	1
06951	Chromium	7440-47-3	27.8		0.215	1
06955	Lead	7439-92-1	16.4		0.338	1
06936	Selenium	7782-49-2	2.69	J	1.04	1
06966	Silver	7440-22-4	0.128	U	0.128	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	12.9		0.123	2

DHR13-0832

Sample Description: HGR-011812-FD02 Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526789
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 10:00 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

FD2-- SDG#: DHR13-03FD

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 7471A**		mg/kg	mg/kg	
00159	Mercury	7439-97-6	0.0134 J	0.0105	1
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	36.2	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	B120241AA	01/24/2012 21:28	Chelsea B Eastep	0.98
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	1	201201926615	01/19/2012 21:48	Scott W Freisher	n.a.
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	2	201201926615	01/19/2012 21:48	Scott W Freisher	n.a.
06646	GC/MS HL Bulk Sample Prep	SW-846 5035A Modified	1	201201926615	01/19/2012 21:26	Scott W Freisher	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	12020SLA026	01/23/2012 16:30	Matthew S Woods	10
10809	BNA Soil Microwave	SW-846 3546	1	12020SLA026	01/20/2012 14:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	120245708001	01/25/2012 00:16	John W Yanzuk II	1
06949	Cadmium	SW-846 6010B	1	120245708001	01/25/2012 00:16	John W Yanzuk II	1
06951	Chromium	SW-846 6010B	1	120245708001	01/25/2012 00:16	John W Yanzuk II	1
06955	Lead	SW-846 6010B	1	120245708001	01/25/2012 00:16	John W Yanzuk II	1
06936	Selenium	SW-846 6010B	1	120245708001	01/25/2012 00:16	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	120245708001	01/25/2012 00:16	John W Yanzuk II	1
06125	Arsenic	SW-846 6020	1	120245708001A	01/26/2012 11:19	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	120255711001	01/25/2012 19:05	Nelli S Markaryan	1
05708	SW SW846 ICP/ICP MS Digest	SW-846 3050B	1	120245708001	01/24/2012 12:28	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	120245711001	01/24/2012 14:40	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	2	120255711001	01/25/2012 12:50	James L Mertz	1
00111	Moisture	SM20 2540 G	1	12025820002B	01/25/2012 18:32	Scott W Freisher	1

DHR13 0033

Sample Description: S17-SD01 Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526790
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 10:15 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

17S-1 SDG#: DHR13-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	SW-846 8260B		ug/kg		ug/kg	
10949	Acetone	67-64-1	12	U	12	1.04
10949	Benzene	71-43-2	0.8	U	0.8	1.04
10949	Bromobenzene	108-86-1	2	U	2	1.04
10949	Bromochloromethane	74-97-5	2	U	2	1.04
10949	Bromodichloromethane	75-27-4	2	U	2	1.04
10949	Bromoform	75-25-2	2	U	2	1.04
10949	Bromomethane	74-83-9	3	U	3	1.04
10949	2-Butanone	78-93-3	7	U	7	1.04
10949	n-Butylbenzene	104-51-8	2	U	2	1.04
10949	sec-Butylbenzene	135-98-8	2	U	2	1.04
10949	tert-Butylbenzene	98-06-6	2	U	2	1.04
10949	Carbon Disulfide	75-15-0	2	U	2	1.04
10949	Carbon Tetrachloride	56-23-5	2	U	2	1.04
10949	Chlorobenzene	108-90-7	2	U	2	1.04
10949	Chloroethane	75-00-3	3	U	3	1.04
10949	Chloroform	67-66-3	2	U	2	1.04
10949	Chloromethane	74-87-3	3	U	3	1.04
10949	2-Chlorotoluene	95-49-8	2	U	2	1.04
10949	4-Chlorotoluene	106-43-4	2	U	2	1.04
10949	Cyclohexane	110-82-7	2	U	2	1.04
10949	1,2-Dibromo-3-chloropropane	96-12-8	3	U	3	1.04
10949	Dibromochloromethane	124-48-1	2	U	2	1.04
10949	1,2-Dibromoethane	106-93-4	2	U	2	1.04
10949	Dibromomethane	74-95-3	2	U	2	1.04
10949	1,2-Dichlorobenzene	95-50-1	2	U	2	1.04
10949	1,3-Dichlorobenzene	541-73-1	2	U	2	1.04
10949	1,4-Dichlorobenzene	106-46-7	2	U	2	1.04
10949	Dichlorodifluoromethane	75-71-8	3	U	3	1.04
10949	1,1-Dichloroethane	75-34-3	2	U	2	1.04
10949	1,2-Dichloroethane	107-06-2	2	U	2	1.04
10949	1,1-Dichloroethene	75-35-4	2	U	2	1.04
10949	cis-1,2-Dichloroethene	156-59-2	2	U	2	1.04
10949	trans-1,2-Dichloroethene	156-60-5	2	U	2	1.04
10949	1,2-Dichloropropane	78-87-5	2	U	2	1.04
10949	1,3-Dichloropropane	142-28-9	2	U	2	1.04
10949	2,2-Dichloropropane	594-20-7	2	U	2	1.04
10949	1,1-Dichloropropene	563-58-6	2	U	2	1.04
10949	cis-1,3-Dichloropropene	10061-01-5	2	U	2	1.04
10949	trans-1,3-Dichloropropene	10061-02-6	2	U	2	1.04
10949	Ethylbenzene	100-41-4	2	U	2	1.04
10949	Freon 113	76-13-1	3	U	3	1.04
10949	Hexachlorobutadiene	87-68-3	3	U	3	1.04
10949	2-Hexanone	591-78-6	5	U	5	1.04
10949	Isopropylbenzene	98-82-8	2	U	2	1.04
10949	p-Isopropyltoluene	99-87-6	2	U	2	1.04
10949	Methyl Acetate	79-20-9	3	U	3	1.04
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.8	U	0.8	1.04
10949	4-Methyl-2-pentanone	108-10-1	5	U	5	1.04
10949	Methylcyclohexane	108-87-2	2	U	2	1.04
10949	Methylene Chloride	75-09-2	3	U	3	1.04
10949	Naphthalene	91-20-3	2	U	2	1.04

DHR13 0834

Sample Description: S17-SD01 Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526790
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 10:15 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

17S-1 SDG#: DHR13-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg		ug/kg	
10949	n-Propylbenzene	103-65-1	2	U	2	1.04
10949	Styrene	100-42-5	2	U	2	1.04
10949	1,1,1,2-Tetrachloroethane	630-20-6	2	U	2	1.04
10949	1,1,2,2-Tetrachloroethane	79-34-5	2	U	2	1.04
10949	Tetrachloroethene	127-18-4	2	U	2	1.04
10949	Toluene	108-88-3	2	U	2	1.04
10949	1,2,3-Trichlorobenzene	87-61-6	2	U	2	1.04
10949	1,2,4-Trichlorobenzene	120-82-1	2	U	2	1.04
10949	1,1,1-Trichloroethane	71-55-6	2	U	2	1.04
10949	1,1,2-Trichloroethane	79-00-5	2	U	2	1.04
10949	Trichloroethene	79-01-6	2	U	2	1.04
10949	Trichlorofluoromethane	75-69-4	3	U	3	1.04
10949	1,2,3-Trichloropropane	96-18-4	2	U	2	1.04
10949	1,2,4-Trimethylbenzene	95-63-6	2	U	2	1.04
10949	1,3,5-Trimethylbenzene	108-67-8	2	U	2	1.04
10949	Vinyl Acetate	108-05-4	3	U	3	1.04
10949	Vinyl Chloride	75-01-4	2	U	2	1.04
10949	m+p-Xylene	179601-23-1	2	U	2	1.04
10949	o-Xylene	95-47-6	2	U	2	1.04
GC/MS Semivolatiles	**SW-846 8270C**		ug/kg		ug/kg	
10727	Acenaphthene	83-32-9	5	U	5	1
10727	Acenaphthylene	208-96-8	14	J	5	1
10727	Anthracene	120-12-7	22	J	5	1
10727	Benzo(a)anthracene	56-55-3	43		5	1
10727	Benzo(a)pyrene	50-32-8	47		5	1
10727	Benzo(b)fluoranthene	205-99-2	65		5	1
10727	Benzo(g,h,i)perylene	191-24-2	38		5	1
10727	Benzo(k)fluoranthene	207-08-9	25	J	5	1
10727	Benzyl alcohol	100-51-6	270	U	270	1
10727	1,1'-Biphenyl	92-52-4	51	J	27	1
10727	4-Bromophenyl-phenylether	101-55-3	27	U	27	1
10727	Butylbenzylphthalate	85-68-7	110	U	110	1
10727	Di-n-butylphthalate	84-74-2	110	U	110	1
10727	Carbazole	86-74-8	27	U	27	1
10727	4-Chloro-3-methylphenol	59-50-7	27	U	27	1
10727	4-Chloroaniline	106-47-8	27	U	27	1
10727	bis(2-Chloroethoxy)methane	111-91-1	27	U	27	1
10727	bis(2-Chloroethyl)ether	111-44-4	27	U	27	1
10727	bis(2-Chloroisopropyl)ether	39638-32-9	27	U	27	1
10727	2-Chloronaphthalene	91-58-7	11	U	11	1
10727	2-Chlorophenol	95-57-8	27	U	27	1
10727	4-Chlorophenyl-phenylether	7005-72-3	27	U	27	1
10727	Chrysene	218-01-9	55		5	1
10727	Dibenz(a,h)anthracene	53-70-3	13	J	5	1
10727	Dibenzofuran	132-64-9	27	U	27	1
10727	3,3'-Dichlorobenzidine	91-94-1	160	U	160	1
10727	2,4-Dichlorophenol	120-83-2	27	U	27	1
10727	Diethylphthalate	84-66-2	110	U	110	1
10727	2,4-Dimethylphenol	105-67-9	27	U	27	1
10727	Dimethylphthalate	131-11-3	110	U	110	1

DHR13 0035

Sample Description: S17-SD01 Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526790
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 10:15 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

17S-1 SDG#: DHR13-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	4,6-Dinitro-2-methylphenol	534-52-1	270	U	270	1
10727	2,4-Dinitrophenol	51-28-5	480	U	480	1
10727	2,4-Dinitrotoluene	121-14-2	110	U	110	1
10727	2,6-Dinitrotoluene	606-20-2	27	U	27	1
10727	1,4-Dioxane	123-91-1	160	U	160	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	110	U	110	1
10727	Fluoranthene	206-44-0	96		5	1
10727	Fluorene	86-73-7	10	J	5	1
10727	Hexachlorobenzene	118-74-1	5	U	5	1
10727	Hexachlorocyclopentadiene	77-47-4	270	U	270	1
10727	Hexachloroethane	67-72-1	53	U	53	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	32		5	1
10727	Isophorone	78-59-1	27	U	27	1
10727	2-Methylnaphthalene	91-57-6	13	J	5	1
10727	2-Methylphenol	95-48-7	27	U	27	1
10727	4-Methylphenol	106-44-5	27	U	27	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	27	U	27	1
10727	3-Nitroaniline	99-09-2	110	U	110	1
10727	4-Nitroaniline	100-01-6	110	U	110	1
10727	Nitrobenzene	98-95-3	27	U	27	1
10727	2-Nitrophenol	88-75-5	27	U	27	1
10727	4-Nitrophenol	100-02-7	270	U	270	1
10727	N-Nitroso-di-n-propylamine	621-64-7	27	U	27	1
10727	N-Nitrosodiphenylamine	86-30-6	27	U	27	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	110	U	110	1
10727	Pentachlorophenol	87-86-5	1,300		53	1
10727	Phenanthrene	85-01-8	51		5	1
10727	Phenol	108-95-2	27	U	27	1
10727	Pyrene	129-00-0	77		5	1
10727	2,4,5-Trichlorophenol	95-95-4	27	U	27	1
10727	2,4,6-Trichlorophenol	88-06-2	27	U	27	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	107		0.0282	1
06949	Cadmium	7440-43-9	0.255	J	0.0313	1
06951	Chromium	7440-47-3	27.7		0.219	1
06955	Lead	7439-92-1	21.0		0.345	1
06936	Selenium	7782-49-2	2.90	J	1.06	1
06966	Silver	7440-22-4	0.130	U	0.130	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	11.1		0.125	2 DHR13-0835
	SW-846 7471A		**mg/kg**		**mg/kg**	

Sample Description: S17-SD01 Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526790
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 10:15 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

17S-1 SDG#: DHR13-04

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 7471A**		mg/kg	mg/kg	
00159	Mercury	7439-97-6	0.0228 J	0.0110	1
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	37.4	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	B120241AA	01/24/2012 15:09	Chelsea B Eastep	1.04
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	1	201201926615	01/19/2012 21:48	Scott W Freisher	n.a.
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	2	201201926615	01/19/2012 21:48	Scott W Freisher	n.a.
06646	GC/MS HL Bulk Sample Prep	SW-846 5035A Modified	1	201201926615	01/19/2012 21:29	Scott W Freisher	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	12020SLA026	01/23/2012 00:55	Jennifer R Riggs	1
10809	BNA Soil Microwave	SW-846 3546	1	12020SLA026	01/20/2012 14:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	120245708001	01/25/2012 00:19	John W Yanzuk II	1
06949	Cadmium	SW-846 6010B	1	120245708001	01/25/2012 00:19	John W Yanzuk II	1
06951	Chromium	SW-846 6010B	1	120245708001	01/25/2012 00:19	John W Yanzuk II	1
06955	Lead	SW-846 6010B	1	120245708001	01/25/2012 00:19	John W Yanzuk II	1
06936	Selenium	SW-846 6010B	1	120245708001	01/25/2012 00:19	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	120245708001	01/25/2012 00:19	John W Yanzuk II	1
06125	Arsenic	SW-846 6020	1	120245708001A	01/26/2012 11:21	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	120255711001	01/25/2012 19:06	Nelli S Markaryan	1
05708	SW SW846 ICP/ICP MS Digest	SW-846 3050B	1	120245708001	01/24/2012 12:28	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	120245711001	01/24/2012 14:40	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	2	120255711001	01/25/2012 12:50	James L Mertz	1
00111	Moisture	SM20 2540 G	1	12025820002B	01/25/2012 18:32	Scott W Freisher	1

DHR13 0037

Sample Description: S18-SD03 Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526791
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 13:30 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S3- SDG#: DHR13-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	SW-846 8260B		ug/kg		ug/kg	
10949	Acetone	67-64-1	8	U	8	0.93
10949	Benzene	71-43-2	0.5	U	0.5	0.93
10949	Bromobenzene	108-86-1	1	U	1	0.93
10949	Bromochloromethane	74-97-5	1	U	1	0.93
10949	Bromodichloromethane	75-27-4	1	U	1	0.93
10949	Bromoform	75-25-2	1	U	1	0.93
10949	Bromomethane	74-83-9	2	U	2	0.93
10949	2-Butanone	78-93-3	4	U	4	0.93
10949	n-Butylbenzene	104-51-8	1	U	1	0.93
10949	sec-Butylbenzene	135-98-8	1	U	1	0.93
10949	tert-Butylbenzene	98-06-6	1	U	1	0.93
10949	Carbon Disulfide	75-15-0	1	U	1	0.93
10949	Carbon Tetrachloride	56-23-5	1	U	1	0.93
10949	Chlorobenzene	108-90-7	1	U	1	0.93
10949	Chloroethane	75-00-3	2	U	2	0.93
10949	Chloroform	67-66-3	1	U	1	0.93
10949	Chloromethane	74-87-3	2	U	2	0.93
10949	2-Chlorotoluene	95-49-8	1	U	1	0.93
10949	4-Chlorotoluene	106-43-4	1	U	1	0.93
10949	Cyclohexane	110-82-7	1	U	1	0.93
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	0.93
10949	Dibromochloromethane	124-48-1	1	U	1	0.93
10949	1,2-Dibromoethane	106-93-4	1	U	1	0.93
10949	Dibromomethane	74-95-3	1	U	1	0.93
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	0.93
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	0.93
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	0.93
10949	Dichlorodifluoromethane	75-71-8	2	U	2	0.93
10949	1,1-Dichloroethane	75-34-3	1	U	1	0.93
10949	1,2-Dichloroethane	107-06-2	1	U	1	0.93
10949	1,1-Dichloroethene	75-35-4	1	U	1	0.93
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	0.93
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	0.93
10949	1,2-Dichloropropane	78-87-5	1	U	1	0.93
10949	1,3-Dichloropropane	142-28-9	1	U	1	0.93
10949	2,2-Dichloropropane	594-20-7	1	U	1	0.93
10949	1,1-Dichloropropene	563-58-6	1	U	1	0.93
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	0.93
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	0.93
10949	Ethylbenzene	100-41-4	1	U	1	0.93
10949	Freon 113	76-13-1	2	U	2	0.93
10949	Hexachlorobutadiene	87-68-3	2	U	2	0.93
10949	2-Hexanone	591-78-6	3	U	3	0.93
10949	Isopropylbenzene	98-82-8	1	U	1	0.93
10949	p-Isopropyltoluene	99-87-6	1	U	1	0.93
10949	Methyl Acetate	79-20-9	2	U	2	0.93
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	0.93
10949	4-Methyl-2-pentanone	108-10-1	3	U	3	0.93
10949	Methylcyclohexane	108-87-2	1	U	1	0.93
10949	Methylene Chloride	75-09-2	2	U	2	0.93
10949	Naphthalene	91-20-3	1	U	1	0.93

DHR13 0039-

Sample Description: S18-SD03 Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526791
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 13:30 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S3- SDG#: DHR13-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg		ug/kg	
10949	n-Propylbenzene	103-65-1	1	U	1	0.93
10949	Styrene	100-42-5	1	U	1	0.93
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	0.93
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	0.93
10949	Tetrachloroethene	127-18-4	1	U	1	0.93
10949	Toluene	108-88-3	1	U	1	0.93
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	0.93
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	0.93
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	0.93
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	0.93
10949	Trichloroethene	79-01-6	1	U	1	0.93
10949	Trichlorofluoromethane	75-69-4	2	U	2	0.93
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	0.93
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	0.93
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	0.93
10949	Vinyl Acetate	108-05-4	2	U	2	0.93
10949	Vinyl Chloride	75-01-4	1	U	1	0.93
10949	m+p-Xylene	179601-23-1	1	U	1	0.93
10949	o-Xylene	95-47-6	1	U	1	0.93
GC/MS Semivolatiles	**SW-846 8270C**		ug/kg		ug/kg	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	7	J	4	1
10727	Anthracene	120-12-7	8	J	4	1
10727	Benzo(a)anthracene	56-55-3	38		4	1
10727	Benzo(a)pyrene	50-32-8	46		4	1
10727	Benzo(b)fluoranthene	205-99-2	77		4	1
10727	Benzo(g,h,i)perylene	191-24-2	47		4	1
10727	Benzo(k)fluoranthene	207-08-9	29		4	1
10727	Benzyl alcohol	100-51-6	190	U	190	1
10727	1,1'-Biphenyl	92-52-4	87		19	1
10727	4-Bromophenyl-phenylether	101-55-3	19	U	19	1
10727	Butylbenzylphthalate	85-68-7	78	U	78	1
10727	Di-n-butylphthalate	84-74-2	78	U	78	1
10727	Carbazole	86-74-8	19	U	19	1
10727	4-Chloro-3-methylphenol	59-50-7	19	U	19	1
10727	4-Chloroaniline	106-47-8	19	U	19	1
10727	bis(2-Chloroethoxy)methane	111-91-1	19	U	19	1
10727	bis(2-Chloroethyl)ether	111-44-4	19	U	19	1
10727	bis(2-Chloroisopropyl)ether	39638-32-9	19	U	19	1
10727	2-Chloronaphthalene	91-58-7	8	U	8	1
10727	2-Chlorophenol	95-57-8	19	U	19	1
10727	4-Chlorophenyl-phenylether	7005-72-3	19	U	19	1
10727	Chrysene	218-01-9	51		4	1
10727	Dibenz(a,h)anthracene	53-70-3	14	J	4	1
10727	Dibenzofuran	132-64-9	19	U	19	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	19	U	19	1
10727	Diethylphthalate	84-66-2	78	U	78	1
10727	2,4-Dimethylphenol	105-67-9	19	U	19	1
10727	Dimethylphthalate	131-11-3	78	U	78	1

DHR13 0839

Sample Description: S18-SD03 Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526791
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 13:30 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S3- SDG#: DHR13-05

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	4,6-Dinitro-2-methylphenol	534-52-1	190	U	190	1
10727	2,4-Dinitrophenol	51-28-5	350	U	350	1
10727	2,4-Dinitrotoluene	121-14-2	78	U	78	1
10727	2,6-Dinitrotoluene	606-20-2	19	U	19	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	78	U	78	1
10727	Fluoranthene	206-44-0	98		4	1
10727	Fluorene	86-73-7	4	U	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	190	U	190	1
10727	Hexachloroethane	67-72-1	39	U	39	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	39		4	1
10727	Isophorone	78-59-1	19	U	19	1
10727	2-Methylnaphthalene	91-57-6	8	J	4	1
10727	2-Methylphenol	95-48-7	19	U	19	1
10727	4-Methylphenol	106-44-5	19	U	19	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	19	U	19	1
10727	3-Nitroaniline	99-09-2	78	U	78	1
10727	4-Nitroaniline	100-01-6	78	U	78	1
10727	Nitrobenzene	98-95-3	19	U	19	1
10727	2-Nitrophenol	88-75-5	19	U	19	1
10727	4-Nitrophenol	100-02-7	190	U	190	1
10727	N-Nitroso-di-n-propylamine	621-64-7	19	U	19	1
10727	N-Nitrosodiphenylamine	86-30-6	19	U	19	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	78	U	78	1
10727	Pentachlorophenol	87-86-5	39	U	39	1
10727	Phenanthrene	85-01-8	37		4	1
10727	Phenol	108-95-2	19	U	19	1
10727	Pyrene	129-00-0	70		4	1
10727	2,4,5-Trichlorophenol	95-95-4	19	U	19	1
10727	2,4,6-Trichlorophenol	88-06-2	19	U	19	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	42.0		0.0210	1
06949	Cadmium	7440-43-9	0.149	J	0.0233	1
06951	Chromium	7440-47-3	15.1		0.163	1
06955	Lead	7439-92-1	8.86		0.256	1
06936	Selenium	7782-49-2	1.98	J	0.793	1
06966	Silver	7440-22-4	0.0967	U	0.0967	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	12.2		0.0932	2 DHR13-05AB
	SW-846 7471A		**mg/kg**		**mg/kg**	

Sample Description: S18-SD03 Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526791
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 13:30 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S3- SDG#: DHR13-05

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals		**SW-846 7471A**	**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0079 U	0.0079	1
Wet Chemistry		**SM20 2540 G**	**%**	**%**	
00111	Moisture	n.a.	14.2	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	B120241AA	01/24/2012 21:51	Chelsea B Eastep	0.93
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	1	201201926615	01/19/2012 21:48	Scott W Freisher	n.a.
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	2	201201926615	01/19/2012 21:48	Scott W Freisher	n.a.
06646	GC/MS HL Bulk Sample Prep	SW-846 5035A Modified	1	201201926615	01/19/2012 21:30	Scott W Freisher	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	12020SLA026	01/23/2012 01:20	Jennifer R Riggs	1
10809	BNA Soil Microwave	SW-846 3546	1	12020SLA026	01/20/2012 14:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	120245708001	01/25/2012 00:23	John W Yanzuk II	1
06949	Cadmium	SW-846 6010B	1	120245708001	01/25/2012 00:23	John W Yanzuk II	1
06951	Chromium	SW-846 6010B	1	120245708001	01/25/2012 00:23	John W Yanzuk II	1
06955	Lead	SW-846 6010B	1	120245708001	01/25/2012 00:23	John W Yanzuk II	1
06936	Selenium	SW-846 6010B	1	120245708001	01/25/2012 00:23	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	120245708001	01/25/2012 00:23	John W Yanzuk II	1
06125	Arsenic	SW-846 6020	1	120245708001A	01/26/2012 11:23	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	120255711001	01/25/2012 19:09	Nelli S Markaryan	1
05708	SW SW846 ICP/ICP MS Digest	SW-846 3050B	1	120245708001	01/24/2012 12:28	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	120245711001	01/24/2012 14:40	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	2	120255711001	01/25/2012 12:50	James L Mertz	1
00111	Moisture	SM20 2540 G	1	12025820002B	01/25/2012 18:32	Scott W Freisher	1

DHR13 0041

Sample Description: S18-SD04 Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526792
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 14:00 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S4- SDG#: DHR13-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		ug/kg		ug/kg	
10949	Acetone	67-64-1	9	U	9	1
10949	Benzene	71-43-2	0.6	U	0.6	1
10949	Bromobenzene	108-86-1	1	U	1	1
10949	Bromochloromethane	74-97-5	1	U	1	1
10949	Bromodichloromethane	75-27-4	1	U	1	1
10949	Bromoform	75-25-2	1	U	1	1
10949	Bromomethane	74-83-9	2	U	2	1
10949	2-Butanone	78-93-3	5	U	5	1
10949	n-Butylbenzene	104-51-8	1	U	1	1
10949	sec-Butylbenzene	135-98-8	1	U	1	1
10949	tert-Butylbenzene	98-06-6	1	U	1	1
10949	Carbon Disulfide	75-15-0	1	U	1	1
10949	Carbon Tetrachloride	56-23-5	1	U	1	1
10949	Chlorobenzene	108-90-7	1	U	1	1
10949	Chloroethane	75-00-3	2	U	2	1
10949	Chloroform	67-66-3	1	U	1	1
10949	Chloromethane	74-87-3	2	U	2	1
10949	2-Chlorotoluene	95-49-8	1	U	1	1
10949	4-Chlorotoluene	106-43-4	1	U	1	1
10949	Cyclohexane	110-82-7	1	U	1	1
10949	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	1
10949	Dibromochloromethane	124-48-1	1	U	1	1
10949	1,2-Dibromoethane	106-93-4	1	U	1	1
10949	Dibromomethane	74-95-3	1	U	1	1
10949	1,2-Dichlorobenzene	95-50-1	1	U	1	1
10949	1,3-Dichlorobenzene	541-73-1	1	U	1	1
10949	1,4-Dichlorobenzene	106-46-7	1	U	1	1
10949	Dichlorodifluoromethane	75-71-8	2	U	2	1
10949	1,1-Dichloroethane	75-34-3	1	U	1	1
10949	1,2-Dichloroethane	107-06-2	1	U	1	1
10949	1,1-Dichloroethene	75-35-4	1	U	1	1
10949	cis-1,2-Dichloroethene	156-59-2	1	U	1	1
10949	trans-1,2-Dichloroethene	156-60-5	1	U	1	1
10949	1,2-Dichloropropane	78-87-5	1	U	1	1
10949	1,3-Dichloropropane	142-28-9	1	U	1	1
10949	2,2-Dichloropropane	594-20-7	1	U	1	1
10949	1,1-Dichloropropene	563-58-6	1	U	1	1
10949	cis-1,3-Dichloropropene	10061-01-5	1	U	1	1
10949	trans-1,3-Dichloropropene	10061-02-6	1	U	1	1
10949	Ethylbenzene	100-41-4	1	U	1	1
10949	Freon 113	76-13-1	2	U	2	1
10949	Hexachlorobutadiene	87-68-3	2	U	2	1
10949	2-Hexanone	591-78-6	4	U	4	1
10949	Isopropylbenzene	98-82-8	1	U	1	1
10949	p-Isopropyltoluene	99-87-6	1	U	1	1
10949	Methyl Acetate	79-20-9	2	U	2	1
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.6	U	0.6	1
10949	4-Methyl-2-pentanone	108-10-1	4	U	4	1
10949	Methylcyclohexane	108-87-2	1	U	1	1
10949	Methylene Chloride	75-09-2	4	J	2	1
10949	Naphthalene	91-20-3	1	U	1	1

DHR13 0042

Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster PA, 17605-2425
717-656-2300 Fax: 717-656-2681

Sample Description: S18-SD04 Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526792
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 14:00 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S4- SDG#: DHR13-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/kg**		**ug/kg**	
10949	n-Propylbenzene	103-65-1	1	U	1	1
10949	Styrene	100-42-5	1	U	1	1
10949	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	1
10949	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	1
10949	Tetrachloroethene	127-18-4	1	U	1	1
10949	Toluene	108-88-3	1	U	1	1
10949	1,2,3-Trichlorobenzene	87-61-6	1	U	1	1
10949	1,2,4-Trichlorobenzene	120-82-1	1	U	1	1
10949	1,1,1-Trichloroethane	71-55-6	1	U	1	1
10949	1,1,2-Trichloroethane	79-00-5	1	U	1	1
10949	Trichloroethene	79-01-6	1	U	1	1
10949	Trichlorofluoromethane	75-69-4	2	U	2	1
10949	1,2,3-Trichloropropane	96-18-4	1	U	1	1
10949	1,2,4-Trimethylbenzene	95-63-6	1	U	1	1
10949	1,3,5-Trimethylbenzene	108-67-8	1	U	1	1
10949	Vinyl Acetate	108-05-4	2	U	2	1
10949	Vinyl Chloride	75-01-4	1	U	1	1
10949	m+p-Xylene	179601-23-1	1	U	1	1
10949	o-Xylene	95-47-6	1	U	1	1
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	Acenaphthene	83-32-9	4	U	4	1
10727	Acenaphthylene	208-96-8	21		4	1
10727	Anthracene	120-12-7	45		4	1
10727	Benzo(a)anthracene	56-55-3	160		4	1
10727	Benzo(a)pyrene	50-32-8	150		4	1
10727	Benzo(b)fluoranthene	205-99-2	180		4	1
10727	Benzo(g,h,i)perylene	191-24-2	98		4	1
10727	Benzo(k)fluoranthene	207-08-9	79		4	1
10727	Benzyl alcohol	100-51-6	200	U	200	1
10727	1,1'-Biphenyl	92-52-4	22	J	20	1
10727	4-Bromophenyl-phenylether	101-55-3	20	U	20	1
10727	Butylbenzylphthalate	85-68-7	82	U	82	1
10727	Di-n-butylphthalate	84-74-2	82	U	82	1
10727	Carbazole	86-74-8	20	U	20	1
10727	4-Chloro-3-methylphenol	59-50-7	20	U	20	1
10727	4-Chloroaniline	106-47-8	20	U	20	1
10727	bis(2-Chloroethoxy)methane	111-91-1	20	U	20	1
10727	bis(2-Chloroethyl)ether	111-44-4	20	U	20	1
10727	bis(2-Chloroisopropyl)ether	39638-32-9	20	U	20	1
10727	2-Chloronaphthalene	91-58-7	9	U	9	1
10727	2-Chlorophenol	95-57-8	20	U	20	1
10727	4-Chlorophenyl-phenylether	7005-72-3	20	U	20	1
10727	Chrysene	218-01-9	140		4	1
10727	Dibenz(a,h)anthracene	53-70-3	27		4	1
10727	Dibenzofuran	132-64-9	20	U	20	1
10727	3,3'-Dichlorobenzidine	91-94-1	120	U	120	1
10727	2,4-Dichlorophenol	120-83-2	20	U	20	1
10727	Diethylphthalate	84-66-2	82	U	82	1
10727	2,4-Dimethylphenol	105-67-9	20	U	20	1
10727	Dimethylphthalate	131-11-3	82	U	82	1

DHR13 0642

Sample Description: S18-SD04 Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526792
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 14:00 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S4- SDG#: DHR13-06

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	4,6-Dinitro-2-methylphenol	534-52-1	200	U	200	1
10727	2,4-Dinitrophenol	51-28-5	370	U	370	1
10727	2,4-Dinitrotoluene	121-14-2	82	U	82	1
10727	2,6-Dinitrotoluene	606-20-2	20	U	20	1
10727	1,4-Dioxane	123-91-1	120	U	120	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	82	U	82	1
10727	Fluoranthene	206-44-0	260		4	1
10727	Fluorene	86-73-7	7	J	4	1
10727	Hexachlorobenzene	118-74-1	4	U	4	1
10727	Hexachlorocyclopentadiene	77-47-4	200	U	200	1
10727	Hexachloroethane	67-72-1	41	U	41	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	90		4	1
10727	Isophorone	78-59-1	20	U	20	1
10727	2-Methylnaphthalene	91-57-6	6	J	4	1
10727	2-Methylphenol	95-48-7	20	U	20	1
10727	4-Methylphenol	106-44-5	20	U	20	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	20	U	20	1
10727	3-Nitroaniline	99-09-2	82	U	82	1
10727	4-Nitroaniline	100-01-6	82	U	82	1
10727	Nitrobenzene	98-95-3	20	U	20	1
10727	2-Nitrophenol	88-75-5	20	U	20	1
10727	4-Nitrophenol	100-02-7	200	U	200	1
10727	N-Nitroso-di-n-propylamine	621-64-7	20	U	20	1
10727	N-Nitrosodiphenylamine	86-30-6	20	U	20	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	82	U	82	1
10727	Pentachlorophenol	87-86-5	41	U	41	1
10727	Phenanthrene	85-01-8	30		4	1
10727	Phenol	108-95-2	20	U	20	1
10727	Pyrene	129-00-0	220		4	1
10727	2,4,5-Trichlorophenol	95-95-4	20	U	20	1
10727	2,4,6-Trichlorophenol	88-06-2	20	U	20	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	71.4		0.0214	1
06949	Cadmium	7440-43-9	0.0821	J	0.0238	1
06951	Chromium	7440-47-3	20.8		0.167	1
06955	Lead	7439-92-1	16.3		0.262	1
06936	Selenium	7782-49-2	4.35		0.809	1
06966	Silver	7440-22-4	0.0988	U	0.0988	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	16.4		0.0952	2 DHR13-0844
	SW-846 7471A		**mg/kg**		**mg/kg**	

Sample Description: S18-SD04 Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526792
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 14:00 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S4- SDG#: DHR13-06

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 7471A**		**mg/kg**	**mg/kg**	
00159	Mercury	7439-97-6	0.0082 U	0.0082	1
Wet Chemistry	**SM20 2540 G**		**%**	**%**	
00111	Moisture	n.a.	18.4	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	B120241AA	01/24/2012 15:31	Chelsea B Eastep	1
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	1	201201926615	01/19/2012 21:49	Scott W Freisher	n.a.
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	2	201201926615	01/19/2012 21:49	Scott W Freisher	n.a.
06646	GC/MS HL Bulk Sample Prep	SW-846 5035A Modified	1	201201926615	01/19/2012 21:36	Scott W Freisher	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	12020SLA026	01/23/2012 01:43	Jennifer R Riggs	1
10809	BNA Soil Microwave	SW-846 3546	1	12020SLA026	01/20/2012 14:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	120245708001	01/25/2012 00:27	John W Yanzuk II	1
06949	Cadmium	SW-846 6010B	1	120245708001	01/25/2012 00:27	John W Yanzuk II	1
06951	Chromium	SW-846 6010B	1	120245708001	01/25/2012 00:27	John W Yanzuk II	1
06955	Lead	SW-846 6010B	1	120245708001	01/25/2012 00:27	John W Yanzuk II	1
06936	Selenium	SW-846 6010B	1	120245708001	01/25/2012 00:27	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	120245708001	01/25/2012 00:27	John W Yanzuk II	1
06125	Arsenic	SW-846 6020	1	120245708001A	01/26/2012 11:25	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	120255711001	01/25/2012 19:11	Nelli S Markaryan	1
05708	SW SW846 ICP/ICP MS Digest	SW-846 3050B	1	120245708001	01/24/2012 12:28	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	120245711001	01/24/2012 14:40	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	2	120255711001	01/25/2012 12:50	James L Mertz	1
00111	Moisture	SM20 2540 G	1	12025820002B	01/25/2012 18:32	Scott W Freisher	1

DHR13 SD#5

Sample Description: S18-SD05 Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526793
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 14:15 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S5- SDG#: DHR13-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Volatiles	SW-846 8260B		ug/kg		ug/kg	
10949	Acetone	67-64-1	12	U	12	1.08
10949	Benzene	71-43-2	0.8	U	0.8	1.08
10949	Bromobenzene	108-86-1	2	U	2	1.08
10949	Bromochloromethane	74-97-5	2	U	2	1.08
10949	Bromodichloromethane	75-27-4	2	U	2	1.08
10949	Bromoform	75-25-2	2	U	2	1.08
10949	Bromomethane	74-83-9	3	U	3	1.08
10949	2-Butanone	78-93-3	7	U	7	1.08
10949	n-Butylbenzene	104-51-8	2	U	2	1.08
10949	sec-Butylbenzene	135-98-8	2	U	2	1.08
10949	tert-Butylbenzene	98-06-6	2	U	2	1.08
10949	Carbon Disulfide	75-15-0	2	U	2	1.08
10949	Carbon Tetrachloride	56-23-5	2	U	2	1.08
10949	Chlorobenzene	108-90-7	2	U	2	1.08
10949	Chloroethane	75-00-3	3	U	3	1.08
10949	Chloroform	67-66-3	2	U	2	1.08
10949	Chloromethane	74-87-3	3	U	3	1.08
10949	2-Chlorotoluene	95-49-8	2	U	2	1.08
10949	4-Chlorotoluene	106-43-4	2	U	2	1.08
10949	Cyclohexane	110-82-7	2	U	2	1.08
10949	1,2-Dibromo-3-chloropropane	96-12-8	3	U	3	1.08
10949	Dibromochloromethane	124-48-1	2	U	2	1.08
10949	1,2-Dibromoethane	106-93-4	2	U	2	1.08
10949	Dibromomethane	74-95-3	2	U	2	1.08
10949	1,2-Dichlorobenzene	95-50-1	2	U	2	1.08
10949	1,3-Dichlorobenzene	541-73-1	2	U	2	1.08
10949	1,4-Dichlorobenzene	106-46-7	2	U	2	1.08
10949	Dichlorodifluoromethane	75-71-8	3	U	3	1.08
10949	1,1-Dichloroethane	75-34-3	2	U	2	1.08
10949	1,2-Dichloroethane	107-06-2	2	U	2	1.08
10949	1,1-Dichloroethene	75-35-4	2	U	2	1.08
10949	cis-1,2-Dichloroethene	156-59-2	2	U	2	1.08
10949	trans-1,2-Dichloroethene	156-60-5	2	U	2	1.08
10949	1,2-Dichloropropane	78-87-5	2	U	2	1.08
10949	1,3-Dichloropropane	142-28-9	2	U	2	1.08
10949	2,2-Dichloropropane	594-20-7	2	U	2	1.08
10949	1,1-Dichloropropene	563-58-6	2	U	2	1.08
10949	cis-1,3-Dichloropropene	10061-01-5	2	U	2	1.08
10949	trans-1,3-Dichloropropene	10061-02-6	2	U	2	1.08
10949	Ethylbenzene	100-41-4	2	U	2	1.08
10949	Freon 113	76-13-1	3	U	3	1.08
10949	Hexachlorobutadiene	87-68-3	3	U	3	1.08
10949	2-Hexanone	591-78-6	5	U	5	1.08
10949	Isopropylbenzene	98-82-8	2	U	2	1.08
10949	p-Isopropyltoluene	99-87-6	2	U	2	1.08
10949	Methyl Acetate	79-20-9	3	U	3	1.08
10949	Methyl Tertiary Butyl Ether	1634-04-4	0.8	U	0.8	1.08
10949	4-Methyl-2-pentanone	108-10-1	5	U	5	1.08
10949	Methylcyclohexane	108-87-2	2	U	2	1.08
10949	Methylene Chloride	75-09-2	3	U	3	1.08
10949	Naphthalene	91-20-3	2	U	2	1.08

Sample Description: S18-SD05 Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526793
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 14:15 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S5- SDG#: DHR13-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor	
GC/MS Volatiles	**SW-846 8260B**		ug/kg		ug/kg		
10949	n-Propylbenzene	103-65-1	2	U	2	1.08	
10949	Styrene	100-42-5	2	U	2	1.08	
10949	1,1,1,2-Tetrachloroethane	630-20-6	2	U	2	1.08	
10949	1,1,2,2-Tetrachloroethane	79-34-5	2	U	2	1.08	
10949	Tetrachloroethene	127-18-4	2	U	2	1.08	
10949	Toluene	108-88-3	2	U	2	1.08	
10949	1,2,3-Trichlorobenzene	87-61-6	2	U	2	1.08	
10949	1,2,4-Trichlorobenzene	120-82-1	2	U	2	1.08	
10949	1,1,1-Trichloroethane	71-55-6	2	U	2	1.08	
10949	1,1,2-Trichloroethane	79-00-5	2	U	2	1.08	
10949	Trichloroethene	79-01-6	2	U	2	1.08	
10949	Trichlorofluoromethane	75-69-4	3	U	3	1.08	
10949	1,2,3-Trichloropropane	96-18-4	2	U	2	1.08	
10949	1,2,4-Trimethylbenzene	95-63-6	2	U	2	1.08	
10949	1,3,5-Trimethylbenzene	108-67-8	2	U	2	1.08	
10949	Vinyl Acetate	108-05-4	3	U	3	1.08	
10949	Vinyl Chloride	75-01-4	2	U	2	1.08	
10949	m+p-Xylene	179601-23-1	2	U	2	1.08	
10949	o-Xylene	95-47-6	2	U	2	1.08	
GC/MS Semivolatiles	**SW-846 8270C**		ug/kg		ug/kg		
10727	Acenaphthene	83-32-9	5	U	5	1	
10727	Acenaphthylene	208-96-8	7	J	5	1	
10727	Anthracene	120-12-7	21	J	5	1	
10727	Benzo(a)anthracene	56-55-3	28		5	1	
10727	Benzo(a)pyrene	50-32-8	31		5	1	
10727	Benzo(b)fluoranthene	205-99-2	43		5	1	
10727	Benzo(g,h,i)perylene	191-24-2	28		5	1	
10727	Benzo(k)fluoranthene	207-08-9	19	J	5	1	
10727	Benzyl alcohol	100-51-6	250	U	250	1	
10727	1,1'-Biphenyl	92-52-4	45	J	25	1	
10727	4-Bromophenyl-phenylether	101-55-3	25	U	25	1	
10727	Butylbenzylphthalate	85-68-7	100	U	100	1	
10727	Di-n-butylphthalate	84-74-2	100	U	100	1	
10727	Carbazole	86-74-8	25	U	25	1	
10727	4-Chloro-3-methylphenol	59-50-7	25	U	25	1	
10727	4-Chloroaniline	106-47-8	25	U	25	1	
10727	bis(2-Chloroethoxy)methane	111-91-1	25	U	25	1	
10727	bis(2-Chloroethyl)ether	111-44-4	25	U	25	1	
10727	bis(2-Chloroisopropyl)ether	39638-32-9	25	U	25	1	
10727	2-Chloronaphthalene	91-58-7	11	U	11	1	
10727	2-Chlorophenol	95-57-8	25	U	25	1	
10727	4-Chlorophenyl-phenylether	7005-72-3	25	U	25	1	
10727	Chrysene	218-01-9	32		5	1	
10727	Dibenz(a,h)anthracene	53-70-3	5	U	5	1	
10727	Dibenzofuran	132-64-9	25	U	25	1	
10727	3,3'-Dichlorobenzidine	91-94-1	150	U	150	1	
10727	2,4-Dichlorophenol	120-83-2	25	U	25	1	DHR13-6847
10727	Diethylphthalate	84-66-2	100	U	100	1	
10727	2,4-Dimethylphenol	105-67-9	25	U	25	1	
10727	Dimethylphthalate	131-11-3	100	U	100	1	

Sample Description: S18-SD05 Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526793
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 14:15 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S5- SDG#: DHR13-07

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270C**		**ug/kg**		**ug/kg**	
10727	4,6-Dinitro-2-methylphenol	534-52-1	250	U	250	1
10727	2,4-Dinitrophenol	51-28-5	460	U	460	1
10727	2,4-Dinitrotoluene	121-14-2	100	U	100	1
10727	2,6-Dinitrotoluene	606-20-2	25	U	25	1
10727	1,4-Dioxane	123-91-1	150	U	150	1
10727	bis(2-Ethylhexyl)phthalate	117-81-7	100	U	100	1
10727	Fluoranthene	206-44-0	57		5	1
10727	Fluorene	86-73-7	5	U	5	1
10727	Hexachlorobenzene	118-74-1	5	U	5	1
10727	Hexachlorocyclopentadiene	77-47-4	250	U	250	1
10727	Hexachloroethane	67-72-1	51	U	51	1
10727	Indeno(1,2,3-cd)pyrene	193-39-5	28		5	1
10727	Isophorone	78-59-1	25	U	25	1
10727	2-Methylnaphthalene	91-57-6	8	J	5	1
10727	2-Methylphenol	95-48-7	25	U	25	1
10727	4-Methylphenol	106-44-5	25	U	25	1
	3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.					
10727	2-Nitroaniline	88-74-4	25	U	25	1
10727	3-Nitroaniline	99-09-2	100	U	100	1
10727	4-Nitroaniline	100-01-6	100	U	100	1
10727	Nitrobenzene	98-95-3	25	U	25	1
10727	2-Nitrophenol	88-75-5	25	U	25	1
10727	4-Nitrophenol	100-02-7	250	U	250	1
10727	N-Nitroso-di-n-propylamine	621-64-7	25	U	25	1
10727	N-Nitrosodiphenylamine	86-30-6	25	U	25	1
	N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.					
10727	Di-n-octylphthalate	117-84-0	100	U	100	1
10727	Pentachlorophenol	87-86-5	51	U	51	1
10727	Phenanthrene	85-01-8	22	J	5	1
10727	Phenol	108-95-2	25	U	25	1
10727	Pyrene	129-00-0	51		5	1
10727	2,4,5-Trichlorophenol	95-95-4	25	U	25	1
10727	2,4,6-Trichlorophenol	88-06-2	25	U	25	1
Metals	**SW-846 6010B**		**mg/kg**		**mg/kg**	
06946	Barium	7440-39-3	163		0.0273	1
06949	Cadmium	7440-43-9	0.178	J	0.0303	1
06951	Chromium	7440-47-3	26.6		0.212	1
06955	Lead	7439-92-1	21.6		0.334	1
06936	Selenium	7782-49-2	3.46		1.03	1
06966	Silver	7440-22-4	0.126	U	0.126	1
	SW-846 6020		**mg/kg**		**mg/kg**	
06125	Arsenic	7440-38-2	12.3		0.121	2 DHR13, 8848
	SW-846 7471A		**mg/kg**		**mg/kg**	

Sample Description: S18-SD05 Grab Sediment Sample
Dow Hanging Rock, OH

LLI Sample # SW 6526793
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 14:15 by JJ

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

18S5- SDG#: DHR13-07

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
Metals	**SW-846 7471A**		mg/kg	mg/kg	
00159	Mercury	7439-97-6	0.0218 J	0.010	1
Wet Chemistry	**SM20 2540 G**		%	%	
00111	Moisture	n.a.	34.1	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10949	8260 Ext. Soil Master	SW-846 8260B	1	B120241AA	01/24/2012 16:16	Chelsea B Eastep	1.08
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	1	201201926615	01/19/2012 21:49	Scott W Freisher	n.a.
00374	GC/MS - Bulk Soil Prep	SW-846 5035A Modified	2	201201926615	01/19/2012 21:49	Scott W Freisher	n.a.
06646	GC/MS HL Bulk Sample Prep	SW-846 5035A Modified	1	201201926615	01/19/2012 21:38	Scott W Freisher	n.a.
10727	TCL 8270 (microwave)	SW-846 8270C	1	12020SLA026	01/23/2012 02:07	Jennifer R Riggs	1
10809	BNA Soil Microwave	SW-846 3546	1	12020SLA026	01/20/2012 14:00	David S Schrum	1
06946	Barium	SW-846 6010B	1	120245708001	01/25/2012 00:30	John W Yanzuk II	1
06949	Cadmium	SW-846 6010B	1	120245708001	01/25/2012 00:30	John W Yanzuk II	1
06951	Chromium	SW-846 6010B	1	120245708001	01/25/2012 00:30	John W Yanzuk II	1
06955	Lead	SW-846 6010B	1	120245708001	01/25/2012 00:30	John W Yanzuk II	1
06936	Selenium	SW-846 6010B	1	120245708001	01/25/2012 00:30	John W Yanzuk II	1
06966	Silver	SW-846 6010B	1	120245708001	01/25/2012 00:30	John W Yanzuk II	1
06125	Arsenic	SW-846 6020	1	120245708001A	01/26/2012 11:26	Choon Y Tian	2
00159	Mercury	SW-846 7471A	1	120255711001	01/25/2012 19:12	Nelli S Markaryan	1
05708	SW SW846 ICP/ICP MS Digest	SW-846 3050B	1	120245708001	01/24/2012 12:28	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	1	120245711001	01/24/2012 14:40	James L Mertz	1
05711	SW SW846 Hg Digest	SW-846 7471A modified	2	120255711001	01/25/2012 12:50	James L Mertz	1
00111	Moisture	SM20 2540 G	1	12025820002B	01/25/2012 18:32	Scott W Freisher	1

DHR13 0849

Sample Description: HGR-011812-TB01 Water Sample
Dow Hanging Rock, OH

LLI Sample # G5 6526794
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 16:00

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SD-TB SDG#: DHR13-08TB*

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**SW-846 8260B**		**ug/l**		**ug/l**	
10904	Acetone	67-64-1	6	U	6	1
10904	Benzene	71-43-2	0.5	U	0.5	1
10904	Bromobenzene	108-86-1	1	U	1	1
10904	Bromochloromethane	74-97-5	1	U	1	1
10904	Bromodichloromethane	75-27-4	1	U	1	1
10904	Bromoform	75-25-2	1	U	1	1
10904	Bromomethane	74-83-9	1	U	1	1
10904	2-Butanone	78-93-3	3	U	3	1
10904	n-Butylbenzene	104-51-8	1	U	1	1
10904	sec-Butylbenzene	135-98-8	1	U	1	1
10904	tert-Butylbenzene	98-06-6	1	U	1	1
10904	Carbon Disulfide	75-15-0	1	U	1	1
10904	Carbon Tetrachloride	56-23-5	1	U	1	1
10904	Chlorobenzene	108-90-7	0.8	U	0.8	1
10904	Chloroethane	75-00-3	1	U	1	1
10904	Chloroform	67-66-3	0.8	U	0.8	1
10904	Chloromethane	74-87-3	1	U	1	1
10904	2-Chlorotoluene	95-49-8	1	U	1	1
10904	4-Chlorotoluene	106-43-4	1	U	1	1
10904	Cyclohexane	110-82-7	2	U	2	1
10904	1,2-Dibromo-3-chloropropane	96-12-8	2	U	2	1
10904	Dibromochloromethane	124-48-1	1	U	1	1
10904	1,2-Dibromoethane	106-93-4	1	U	1	1
10904	Dibromomethane	74-95-3	1	U	1	1
10904	1,2-Dichlorobenzene	95-50-1	1	U	1	1
10904	1,3-Dichlorobenzene	541-73-1	1	U	1	1
10904	1,4-Dichlorobenzene	106-46-7	1	U	1	1
10904	Dichlorodifluoromethane	75-71-8	2	U	2	1
10904	1,1-Dichloroethane	75-34-3	1	U	1	1
10904	1,2-Dichloroethane	107-06-2	1	U	1	1
10904	1,1-Dichloroethene	75-35-4	0.8	U	0.8	1
10904	cis-1,2-Dichloroethene	156-59-2	0.8	U	0.8	1
10904	trans-1,2-Dichloroethene	156-60-5	0.8	U	0.8	1
10904	1,2-Dichloropropane	78-87-5	1	U	1	1
10904	1,3-Dichloropropane	142-28-9	1	U	1	1
10904	2,2-Dichloropropane	594-20-7	1	U	1	1
10904	1,1-Dichloropropene	563-58-6	1	U	1	1
10904	cis-1,3-Dichloropropene	10061-01-5	1	U	1	1
10904	trans-1,3-Dichloropropene	10061-02-6	1	U	1	1
10904	Ethylbenzene	100-41-4	0.8	U	0.8	1
10904	Freon 113	76-13-1	2	U	2	1
10904	Hexachlorobutadiene	87-68-3	2	U	2	1
10904	2-Hexanone	591-78-6	3	U	3	1
10904	Isopropylbenzene	98-82-8	1	U	1	1
10904	p-Isopropyltoluene	99-87-6	1	U	1	1
10904	Methyl Acetate	79-20-9	1	U	1	1
10904	Methyl Tertiary Butyl Ether	1634-04-4	0.5	U	0.5	1
10904	4-Methyl-2-pentanone	108-10-1	3	U	3	1
10904	Methylcyclohexane	108-87-2	1	U	1	1
10904	Methylene Chloride	75-09-2	2	U	2	1
10904	Naphthalene	91-20-3	1	U	1	1

DHR13 0858

Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster PA, 17605-2425
717-656-2300 Fax: 717-656-2681

Sample Description: HGR-011812-TB01 Water Sample
Dow Hanging Rock, OH

LLI Sample # G5 6526794
LLI Group # 1285783
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 16:00

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 15:58

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SD-TB SDG#: DHR13-08TB*

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	SW-846 8260B		ug/l		ug/l	
10904	n-Propylbenzene	103-65-1	1	U	1	1
10904	Styrene	100-42-5	1	U	1	1
10904	1,1,1,2-Tetrachloroethane	630-20-6	1	U	1	1
10904	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	1
10904	Tetrachloroethene	127-18-4	0.8	U	0.8	1
10904	Toluene	108-88-3	0.7	U	0.7	1
10904	1,2,3-Trichlorobenzene	87-61-6	1	U	1	1
10904	1,2,4-Trichlorobenzene	120-82-1	1	U	1	1
10904	1,1,1-Trichloroethane	71-55-6	0.8	U	0.8	1
10904	1,1,2-Trichloroethane	79-00-5	0.8	U	0.8	1
10904	Trichloroethene	79-01-6	1	U	1	1
10904	Trichlorofluoromethane	75-69-4	2	U	2	1
10904	1,2,3-Trichloropropane	96-18-4	1	U	1	1
10904	1,2,4-Trimethylbenzene	95-63-6	1	U	1	1
10904	1,3,5-Trimethylbenzene	108-67-8	1	U	1	1
10904	Vinyl Acetate	108-05-4	2	U	2	1
10904	Vinyl Chloride	75-01-4	1	U	1	1
10904	m+p-Xylene	179601-23-1	0.8	U	0.8	1
10904	o-Xylene	95-47-6	0.8	U	0.8	1

General Sample Comments

This sample was subcontracted to another laboratory for Total Sulfide analysis.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10904	8260 Ext. Water Master	SW-846 8260B	1	Y120301AA	01/30/2012 20:41	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	Y120301AA	01/30/2012 20:41	Kevin A Sposito	1

DHR13 0851

Volatiles by GC/MS Data

Case Narrative
Conformance/Non-Conformance
Summary

eurofins | Lancaster Laboratories

Case Narrative

CLIENT: CH2M Hill, Inc.
SDG: DHR13

GC/MS Volatiles

Fraction: Volatiles by GC/MS

8260 Ext. Water Master
8260 Ext. Soil Master

		Matrix			
Sample #	Client ID	Liquid	Solid	DF	Comments
6526784	S18-SD01		X	1	Unspiked
6526785	S18-SD01		X	1	Matrix Spike
6526786	S18-SD01		X	1.01	Matrix Spike Duplicate
6526788	S18-SD02		X	1.07	
6526789	HGR-011812-FD02		X	0.98	Field Duplicate Sample
6526790	S17-SD01		X	1.04	
6526791	S18-SD03		X	0.93	
6526792	S18-SD04		X	1	
6526793	S18-SD05		X	1.08	
6526794	HGR-011812-TB01	X		1	Trip Blank

See QC Reference List for Associated Batch QC Samples

SAMPLE RECEIPT:

Samples were received in good condition and within temperature requirements.

HOLDING TIME:

All holding times were met.

PREPARATION/EXTRACTION/DIGESTION:

No problems were encountered.

CALIBRATION/STANDARDIZATION:

All criteria were met.

DHR13 [illegible]

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Case Narrative

CLIENT: CH2M Hill, Inc.
SDG: DHR13

GC/MS Volatiles

Fraction: Volatiles by GC/MS

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

LCS/LCSD

Sample number(s): 6526784, 6526788-6526794: Analysis: 10949
The recovery for a target analyte(s) in the Laboratory Control Spike(s) is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte(s) was not detected in the sample, the data is reported.

MS/MSD

Please note that US EPA Methods for organic compounds do not require action by the laboratory based on out-of-specification MS/MSD results.

SAMPLE ANALYSIS:

Sample number(s): 6526784: Analysis: 10949
The GC/MS volatile internal standard peak areas were outside the QC limits. A re-analysis was performed, and the matrix effect was confirmed.

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Case Narrative

CLIENT: CH2M Hill, Inc.
SDG: DHR13

GC/MS Volatiles

Fraction: Volatiles by GC/MS

DATA INTERPRETATION:

No further interpretation is necessary for the data submitted.

Abbreviation Key

UNSPK = Unspiked (for MS/MSD)	LOQ = Limit of Quantitation
MS = Matrix Spike	MDL = Method Detection Limit
MSD = Matrix Spike Duplicate	ND = Not Detected
BKG = Background (for Duplicate)	J = Estimated Value
D = Duplicate (DUP)	E= out of calibration range
LCS = Lab Control Sample	RE = Repreparation/Reanalysis
LCSD = Lab Control Sample Duplicate	* = Out of Specification

Narrative Reviewed and Approved 2/2/12 (Date) by Kathy J. Fair

Kathy J. Fair
Specialist

DHR13 0856

Quality Control and Calibration Summary Forms

Fraction: Volatiles by GC/MS

10949: 8260 Ext. Soil Master Analyte Name	Default MDL	Default LOQ	Units
Dichlorodifluoromethane	2	5	ug/kg
Chloromethane	2	5	ug/kg
Vinyl Chloride	1	5	ug/kg
Bromomethane	2	5	ug/kg
Chloroethane	2	5	ug/kg
Trichlorofluoromethane	2	5	ug/kg
1,1-Dichloroethene	1	5	ug/kg
Freon 113	2	10	ug/kg
Acetone	7	20	ug/kg
Carbon Disulfide	1	5	ug/kg
Methyl Acetate	2	5	ug/kg
Methylene Chloride	2	5	ug/kg
trans-1,2-Dichloroethene	1	5	ug/kg
Methyl Tertiary Butyl Ether	0.5	5	ug/kg
1,1-Dichloroethane	1	5	ug/kg
Vinyl Acetate	2	10	ug/kg
2-Butanone	4	10	ug/kg
cis-1,2-Dichloroethene	1	5	ug/kg
2,2-Dichloropropane	1	5	ug/kg
Bromochloromethane	1	5	ug/kg
Chloroform	1	5	ug/kg
1,1,1-Trichloroethane	1	5	ug/kg
Cyclohexane	1	5	ug/kg
1,1-Dichloropropene	1	5	ug/kg
Carbon Tetrachloride	1	5	ug/kg
Benzene	0.5	5	ug/kg
1,2-Dichloroethane	1	5	ug/kg
Trichloroethene	1	5	ug/kg
Methylcyclohexane	1	5	ug/kg
1,2-Dichloropropane	1	5	ug/kg
Dibromomethane	1	5	ug/kg
Bromodichloromethane	1	5	ug/kg
cis-1,3-Dichloropropene	1	5	ug/kg
4-Methyl-2-pentanone	3	10	ug/kg
Toluene	1	5	ug/kg
trans-1,3-Dichloropropene	1	5	ug/kg
1,1,2-Trichloroethane	1	5	ug/kg
Tetrachloroethene	1	5	ug/kg
1,3-Dichloropropane	1	5	ug/kg
2-Hexanone	3	10	ug/kg
Dibromochloromethane	1	5	ug/kg
1,2-Dibromoethane	1	5	ug/kg
Chlorobenzene	1	5	ug/kg
1,1,1,2-Tetrachloroethane	1	5	ug/kg
Ethylbenzene	1	5	ug/kg
m+p-Xylene	1	5	ug/kg
o-Xylene	1	5	ug/kg

DHR13: 6658

Fraction: Volatiles by GC/MS

10949: 8260 Ext. Soil Master Analyte Name	Default MDL	Default LOQ	Units
Styrene	1	5	ug/kg
Bromoform	1	5	ug/kg
Isopropylbenzene	1	5	ug/kg
1,1,2,2-Tetrachloroethane	1	5	ug/kg
Bromobenzene	1	5	ug/kg
1,2,3-Trichloropropane	1	5	ug/kg
n-Propylbenzene	1	5	ug/kg
2-Chlorotoluene	1	5	ug/kg
1,3,5-Trimethylbenzene	1	5	ug/kg
4-Chlorotoluene	1	5	ug/kg
tert-Butylbenzene	1	5	ug/kg
1,2,4-Trimethylbenzene	1	5	ug/kg
sec-Butylbenzene	1	5	ug/kg
1,3-Dichlorobenzene	1	5	ug/kg
p-Isopropyltoluene	1	5	ug/kg
1,4-Dichlorobenzene	1	5	ug/kg
n-Butylbenzene	1	5	ug/kg
1,2-Dichlorobenzene	1	5	ug/kg
1,2-Dibromo-3-chloropropane	2	5	ug/kg
1,2,4-Trichlorobenzene	1	5	ug/kg
Hexachlorobutadiene	2	5	ug/kg
Naphthalene	1	5	ug/kg
1,2,3-Trichlorobenzene	1	5	ug/kg

10904: 8260 Ext. Water Master Analyte Name	Default MDL	Default LOQ	Units
Dichlorodifluoromethane	2	5	ug/l
Chloromethane	1	5	ug/l
Vinyl Chloride	1	5	ug/l
Bromomethane	1	5	ug/l
Chloroethane	1	5	ug/l
Trichlorofluoromethane	2	5	ug/l
1,1-Dichloroethene	0.8	5	ug/l
Acetone	6	20	ug/l
Freon 113	2	10	ug/l
Carbon Disulfide	1	5	ug/l
Methyl Acetate	1	5	ug/l
Methylene Chloride	2	5	ug/l
trans-1,2-Dichloroethene	0.8	5	ug/l
Methyl Tertiary Butyl Ether	0.5	5	ug/l
1,1-Dichloroethane	1	5	ug/l
Vinyl Acetate	2	10	ug/l
2-Butanone	3	10	ug/l
cis-1,2-Dichloroethene	0.8	5	ug/l
2,2-Dichloropropane	1	5	ug/l
Bromochloromethane	1	5	ug/l
Chloroform	0.8	5	ug/l

DHR13: 8859

Fraction: Volatiles by GC/MS

10904: 8260 Ext. Water Master Analyte Name	Default MDL	Default LOQ	Units
1,1,1-Trichloroethane	0.8	5	ug/l
1,1-Dichloropropene	1	5	ug/l
Carbon Tetrachloride	1	5	ug/l
Benzene	0.5	5	ug/l
1,2-Dichloroethane	1	5	ug/l
Trichloroethene	1	5	ug/l
Methylcyclohexane	1	5	ug/l
1,2-Dichloropropane	1	5	ug/l
Dibromomethane	1	5	ug/l
Bromodichloromethane	1	5	ug/l
cis-1,3-Dichloropropene	1	5	ug/l
4-Methyl-2-pentanone	3	10	ug/l
Toluene	0.7	5	ug/l
trans-1,3-Dichloropropene	1	5	ug/l
1,1,2-Trichloroethane	0.8	5	ug/l
Tetrachloroethene	0.8	5	ug/l
1,3-Dichloropropane	1	5	ug/l
2-Hexanone	3	10	ug/l
Dibromochloromethane	1	5	ug/l
1,2-Dibromoethane	1	5	ug/l
Chlorobenzene	0.8	5	ug/l
1,1,1,2-Tetrachloroethane	1	5	ug/l
Ethylbenzene	0.8	5	ug/l
m+p-Xylene	0.8	5	ug/l
o-Xylene	0.8	5	ug/l
Styrene	1	5	ug/l
Bromoform	1	5	ug/l
Isopropylbenzene	1	5	ug/l
Cyclohexane	2	5	ug/l
Bromobenzene	1	5	ug/l
1,1,2,2-Tetrachloroethane	1	5	ug/l
1,2,3-Trichloropropane	1	5	ug/l
n-Propylbenzene	1	5	ug/l
2-Chlorotoluene	1	5	ug/l
1,3,5-Trimethylbenzene	1	5	ug/l
4-Chlorotoluene	1	5	ug/l
tert-Butylbenzene	1	5	ug/l
1,2,4-Trimethylbenzene	1	5	ug/l
sec-Butylbenzene	1	5	ug/l
1,3-Dichlorobenzene	1	5	ug/l
p-Isopropyltoluene	1	5	ug/l
1,4-Dichlorobenzene	1	5	ug/l
n-Butylbenzene	1	5	ug/l
1,2-Dichlorobenzene	1	5	ug/l
1,2-Dibromo-3-chloropropane	2	5	ug/l
1,2,4-Trichlorobenzene	1	5	ug/l
Hexachlorobutadiene	2	5	ug/l

DHR13: 0000

Fraction: Volatiles by GC/MS

10904: 8260 Ext. Water Master Analyte Name	Default MDL	Default LOQ	Units
Naphthalene	1	5	ug/l
1,2,3-Trichlorobenzene	1	5	ug/l

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Quality Control Reference List
GC/MS Volatiles

CLIENT: CH2M Hill, Inc.
SDG: DHR13

Fraction: Volatiles by GC/MS

Analysis	Batch Number	Sample Number	Analysis Date
8260 Ext. Soil Master	B120241AA	VBLKB46	01/24/2012 11:48:00
		LCS1B46	01/24/2012 12:42:00
		LCSB46	01/24/2012 12:20:00
		LCD1B46	01/24/2012 13:05:00
		6526784 UNSPK	01/24/2012 14:02:00
		6526784RE UNSPK	01/24/2012 15:54:00
		6526785 MS	01/24/2012 14:24:00
		6526786 MSD	01/24/2012 14:47:00
		6526788	01/24/2012 17:22:00
		6526789	01/24/2012 21:28:00
		6526790	01/24/2012 15:09:00
		6526791	01/24/2012 21:51:00
		6526792	01/24/2012 15:31:00
		6526793	01/24/2012 16:16:00
8260 Ext. Water Master	Y120301AA	VBLKY79	01/30/2012 17:41:00
		LCS1Y79	01/30/2012 18:43:00
		LCSY79	01/30/2012 18:02:00
		LCD1Y79	01/30/2012 19:04:00
		LCDY79	01/30/2012 18:22:00
		6526794	01/30/2012 20:41:00

DHR13 0062

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Quality Control Summary
Method Blank
GC/MS Volatiles
SDG: DHR13
Matrix: SOLID

Fraction: Volatiles by GC/MS

B120241AA / VBLKB46 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Dichlorodifluoromethane	01/24/12	N.D.	ug/kg	2	5
Chloromethane	01/24/12	N.D.	ug/kg	2	5
Vinyl Chloride	01/24/12	N.D.	ug/kg	1	5
Bromomethane	01/24/12	N.D.	ug/kg	2	5
Chloroethane	01/24/12	N.D.	ug/kg	2	5
Trichlorofluoromethane	01/24/12	N.D.	ug/kg	2	5
1,1-Dichloroethene	01/24/12	N.D.	ug/kg	1	5
Acetone	01/24/12	N.D.	ug/kg	7	20
Carbon Disulfide	01/24/12	N.D.	ug/kg	1	5
Freon 113	01/24/12	N.D.	ug/kg	2	10
Methyl Acetate	01/24/12	N.D.	ug/kg	2	5
Benzene	01/24/12	N.D.	ug/kg	0.5	5
Bromochloromethane	01/24/12	N.D.	ug/kg	1	5
Bromodichloromethane	01/24/12	N.D.	ug/kg	1	5
2-Butanone	01/24/12	N.D.	ug/kg	4	10
Carbon Tetrachloride	01/24/12	N.D.	ug/kg	1	5
Chloroform	01/24/12	N.D.	ug/kg	1	5
Cyclohexane	01/24/12	N.D.	ug/kg	1	5
Dibromomethane	01/24/12	N.D.	ug/kg	1	5
1,1-Dichloroethane	01/24/12	N.D.	ug/kg	1	5
1,2-Dichloroethane	01/24/12	N.D.	ug/kg	1	5
cis-1,2-Dichloroethene	01/24/12	N.D.	ug/kg	1	5
trans-1,2-Dichloroethene	01/24/12	N.D.	ug/kg	1	5
1,2-Dichloropropane	01/24/12	N.D.	ug/kg	1	5
2,2-Dichloropropane	01/24/12	N.D.	ug/kg	1	5
1,1-Dichloropropene	01/24/12	N.D.	ug/kg	1	5
cis-1,3-Dichloropropene	01/24/12	N.D.	ug/kg	1	5
Methyl Tertiary Butyl Ether	01/24/12	N.D.	ug/kg	0.5	5
4-Methyl-2-pentanone	01/24/12	N.D.	ug/kg	3	10
Methylcyclohexane	01/24/12	N.D.	ug/kg	1	5
Methylene Chloride	01/24/12	N.D.	ug/kg	2	5
Toluene	01/24/12	N.D.	ug/kg	1	5
1,1,1-Trichloroethane	01/24/12	N.D.	ug/kg	1	5
Trichloroethene	01/24/12	N.D.	ug/kg	1	5
Vinyl Acetate	01/24/12	N.D.	ug/kg	2	10
Bromobenzene	01/24/12	N.D.	ug/kg	1	5
Bromoform	01/24/12	N.D.	ug/kg	1	5
n-Butylbenzene	01/24/12	N.D.	ug/kg	1	5
sec-Butylbenzene	01/24/12	N.D.	ug/kg	1	5
tert-Butylbenzene	01/24/12	N.D.	ug/kg	1	5
Chlorobenzene	01/24/12	N.D.	ug/kg	1	5
2-Chlorotoluene	01/24/12	N.D.	ug/kg	1	5
4-Chlorotoluene	01/24/12	N.D.	ug/kg	1	5
1,2-Dibromo-3-chloropropane	01/24/12	N.D.	ug/kg	2	5
Dibromochloromethane	01/24/12	N.D.	ug/kg	1	5

DHR13 8863

Fraction: Volatiles by GC/MS

B120241AA / VBLKB46 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
1,2-Dibromoethane	01/24/12	N.D.	ug/kg	1	5
1,2-Dichlorobenzene	01/24/12	N.D.	ug/kg	1	5
1,3-Dichlorobenzene	01/24/12	N.D.	ug/kg	1	5
1,4-Dichlorobenzene	01/24/12	N.D.	ug/kg	1	5
1,3-Dichloropropane	01/24/12	N.D.	ug/kg	1	5
trans-1,3-Dichloropropene	01/24/12	N.D.	ug/kg	1	5
Ethylbenzene	01/24/12	N.D.	ug/kg	1	5
2-Hexanone	01/24/12	N.D.	ug/kg	3	10
Isopropylbenzene	01/24/12	N.D.	ug/kg	1	5
p-Isopropyltoluene	01/24/12	N.D.	ug/kg	1	5
n-Propylbenzene	01/24/12	N.D.	ug/kg	1	5
Styrene	01/24/12	N.D.	ug/kg	1	5
1,1,1,2-Tetrachloroethane	01/24/12	N.D.	ug/kg	1	5
1,1,2,2-Tetrachloroethane	01/24/12	N.D.	ug/kg	1	5
Tetrachloroethene	01/24/12	N.D.	ug/kg	1	5
1,1,2-Trichloroethane	01/24/12	N.D.	ug/kg	1	5
1,2,3-Trichloropropane	01/24/12	N.D.	ug/kg	1	5
1,2,4-Trimethylbenzene	01/24/12	N.D.	ug/kg	1	5
1,3,5-Trimethylbenzene	01/24/12	N.D.	ug/kg	1	5
m+p-Xylene	01/24/12	N.D.	ug/kg	1	5
o-Xylene	01/24/12	N.D.	ug/kg	1	5
Hexachlorobutadiene	01/24/12	N.D.	ug/kg	2	5
Naphthalene	01/24/12	N.D.	ug/kg	1	5
1,2,3-Trichlorobenzene	01/24/12	N.D.	ug/kg	1	5
1,2,4-Trichlorobenzene	01/24/12	N.D.	ug/kg	1	5

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Quality Control Summary
Method Blank
GC/MS Volatiles
SDG: DHR13
Matrix: LIQUID

Fraction: Volatiles by GC/MS

Y120301AA / VBLKY79 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Dichlorodifluoromethane	01/30/12	N.D.	ug/l	2	5
Chloromethane	01/30/12	N.D.	ug/l	1	5
Vinyl Chloride	01/30/12	N.D.	ug/l	1	5
Vinyl Acetate	01/30/12	N.D.	ug/l	2	10
Bromomethane	01/30/12	N.D.	ug/l	1	5
Chloroethane	01/30/12	N.D.	ug/l	1	5
Freon 113	01/30/12	N.D.	ug/l	2	10
Trichlorofluoromethane	01/30/12	N.D.	ug/l	2	5
1,1-Dichloroethene	01/30/12	N.D.	ug/l	0.8	5
Methyl Acetate	01/30/12	N.D.	ug/l	1	5
Methyl Tertiary Butyl Ether	01/30/12	N.D.	ug/l	0.5	5
Acetone	01/30/12	N.D.	ug/l	6	20
Ethylbenzene	01/30/12	N.D.	ug/l	0.8	5
1,1,1,2-Tetrachloroethane	01/30/12	N.D.	ug/l	1	5
Carbon Disulfide	01/30/12	N.D.	ug/l	1	5
m+p-Xylene	01/30/12	N.D.	ug/l	0.8	5
Methylene Chloride	01/30/12	N.D.	ug/l	2	5
o-Xylene	01/30/12	N.D.	ug/l	0.8	5
trans-1,2-Dichloroethene	01/30/12	N.D.	ug/l	0.8	5
Styrene	01/30/12	N.D.	ug/l	1	5
Bromoform	01/30/12	N.D.	ug/l	1	5
1,1-Dichloroethane	01/30/12	N.D.	ug/l	1	5
Isopropylbenzene	01/30/12	N.D.	ug/l	1	5
2-Butanone	01/30/12	N.D.	ug/l	3	10
1,1,2,2-Tetrachloroethane	01/30/12	N.D.	ug/l	1	5
Bromobenzene	01/30/12	N.D.	ug/l	1	5
Cyclohexane	01/30/12	N.D.	ug/l	2	5
cis-1,2-Dichloroethene	01/30/12	N.D.	ug/l	0.8	5
2,2-Dichloropropane	01/30/12	N.D.	ug/l	1	5
1,2,3-Trichloropropane	01/30/12	N.D.	ug/l	1	5
Bromochloromethane	01/30/12	N.D.	ug/l	1	5
n-Propylbenzene	01/30/12	N.D.	ug/l	1	5
Chloroform	01/30/12	N.D.	ug/l	0.8	5
2-Chlorotoluene	01/30/12	N.D.	ug/l	1	5
1,1,1-Trichloroethane	01/30/12	N.D.	ug/l	0.8	5
1,3,5-Trimethylbenzene	01/30/12	N.D.	ug/l	1	5
4-Chlorotoluene	01/30/12	N.D.	ug/l	1	5
1,1-Dichloropropene	01/30/12	N.D.	ug/l	1	5
Methylcyclohexane	01/30/12	N.D.	ug/l	1	5
Benzene	01/30/12	N.D.	ug/l	0.5	5
tert-Butylbenzene	01/30/12	N.D.	ug/l	1	5
Carbon Tetrachloride	01/30/12	N.D.	ug/l	1	5
1,2-Dichloroethane	01/30/12	N.D.	ug/l	1	5
Trichloroethene	01/30/12	N.D.	ug/l	1	5
1,2-Dichloropropane	01/30/12	N.D.	ug/l	1	5

DHR13 0065

Fraction: Volatiles by GC/MS

Y120301AA / VBLKY79 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
1,2,4-Trimethylbenzene	01/30/12	N.D.	ug/l	1	5
sec-Butylbenzene	01/30/12	N.D.	ug/l	1	5
Dibromomethane	01/30/12	N.D.	ug/l	1	5
Bromodichloromethane	01/30/12	N.D.	ug/l	1	5
1,3-Dichlorobenzene	01/30/12	N.D.	ug/l	1	5
cis-1,3-Dichloropropene	01/30/12	N.D.	ug/l	1	5
p-Isopropyltoluene	01/30/12	N.D.	ug/l	1	5
1,4-Dichlorobenzene	01/30/12	N.D.	ug/l	1	5
4-Methyl-2-pentanone	01/30/12	N.D.	ug/l	3	10
Toluene	01/30/12	N.D.	ug/l	0.7	5
n-Butylbenzene	01/30/12	N.D.	ug/l	1	5
trans-1,3-Dichloropropene	01/30/12	N.D.	ug/l	1	5
1,2-Dichlorobenzene	01/30/12	N.D.	ug/l	1	5
1,1,2-Trichloroethane	01/30/12	N.D.	ug/l	0.8	5
1,2-Dibromo-3-chloropropane	01/30/12	N.D.	ug/l	2	5
Tetrachloroethene	01/30/12	N.D.	ug/l	0.8	5
1,3-Dichloropropane	01/30/12	N.D.	ug/l	1	5
1,2,4-Trichlorobenzene	01/30/12	N.D.	ug/l	1	5
Hexachlorobutadiene	01/30/12	N.D.	ug/l	2	5
2-Hexanone	01/30/12	N.D.	ug/l	3	10
Naphthalene	01/30/12	N.D.	ug/l	1	5
Dibromochloromethane	01/30/12	N.D.	ug/l	1	5
1,2-Dibromoethane	01/30/12	N.D.	ug/l	1	5
1,2,3-Trichlorobenzene	01/30/12	N.D.	ug/l	1	5
Chlorobenzene	01/30/12	N.D.	ug/l	0.8	5

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Quality Control Summary
Surrogates
GC/MS Volatiles
SDG: DHR13
Matrix: SOLID

Fraction: Volatiles by GC/MS

B120241AA	Dibromofluoromethane		1,2-Dichloroethane-d4		Toluene-d8		4-Bromofluorobenzene	
	Spike Added	50 ug/kg	Spike Added	50 ug/kg	Spike Added	50 ug/kg	Spike Added	50 ug/kg
Sample	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits
VBLKB46	105	71 - 114	103	70 - 109	100	70 - 123	97	70 - 111
LCSB46	106	71 - 114	102	70 - 109	102	70 - 123	103	70 - 111
6526784	107	71 - 114	104	70 - 109	105	70 - 123	93	70 - 111
6526784RE	102	71 - 114	86	70 - 109	115	70 - 123	87	70 - 111
6526785 MS	107	71 - 114	107	70 - 109	102	70 - 123	101	70 - 111
6526786 MSD	104	71 - 114	100	70 - 109	107	70 - 123	94	70 - 111
6526788	108	71 - 114	104	70 - 109	100	70 - 123	95	70 - 111
6526789	108	71 - 114	102	70 - 109	102	70 - 123	94	70 - 111
6526790	105	71 - 114	101	70 - 109	104	70 - 123	91	70 - 111
6526791	108	71 - 114	100	70 - 109	100	70 - 123	94	70 - 111
6526792	105	71 - 114	100	70 - 109	99	70 - 123	94	70 - 111
6526793	105	71 - 114	98	70 - 109	101	70 - 123	94	70 - 111

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Quality Control Summary
Surrogates
GC/MS Volatiles
SDG: DHR13
Matrix: LIQUID

Fraction: Volatiles by GC/MS

Y120301AA	Dibromofluoromethane		1,2-Dichloroethane-d4		Toluene-d8		4-Bromofluorobenzene	
	Spike Added	50 ug/l	Spike Added	50 ug/l	Spike Added	50 ug/l	Spike Added	50 ug/l
Sample	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits
VBLKY79	104	80 - 116	102	77 - 113	100	80 - 113	96	78 - 113
LCSY79	104	80 - 116	103	77 - 113	101	80 - 113	103	78 - 113
LCDY79	104	80 - 116	104	77 - 113	100	80 - 113	101	78 - 113
6526794	105	80 - 116	102	77 - 113	98	80 - 113	95	78 - 113

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Quality Control Summary
Matrix Spike/Matrix Spike Duplicate

SDG: DHR13
Matrix: SOLID

GC/MS Volatiles
Fraction: Volatiles by GC/MS

UNSPK: 6526784 MS: 6526785 MSD: 6526786 **Analyte**	Batch: **B120241AA** (Sample number(s): 6526784-6526786, 6526788-6526793) **Spike Added ug/kg**	**Unspiked Conc ug/kg**	**MS Conc ug/kg**	**MSD Conc ug/kg**	**MS %Rec**	**MSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Dichlorodifluoromethane	20.04	N.D.	21.24	23.37	106	116	26-151	10	30
Chloromethane	20.04	N.D.	19.1	21.34	95	106	51-163	11	30
Vinyl Chloride	20.04	N.D.	19.29	21.2	96	105	50-154	9	30
Bromomethane	20.04	N.D.	17.49	19.08	87	95	42-168	9	30
Chloroethane	20.04	N.D.	16.36	17.89	82	89	39-152	9	30
Trichlorofluoromethane	20.04	N.D.	30.42	24.25	152	121	47-163	23	30
1,1-Dichloroethene	20.04	N.D.	18.78	21.02	94	104	61-149	11	30
Acetone	150.3	12.21	191.63	205.05	119	128	31-195	7	30
Carbon Disulfide	20.04	N.D.	16.95	19.91	85	99	48-146	16	30
Freon 113	20.04	N.D.	19.66	22.81	98	113	56-156	15	30
Methyl Acetate	20.04	N.D.	20.84	21.1	104	105	48-161	1	30
1,1,1-Trichloroethane	20.04	N.D.	20.06	22.53	100	112	64-142	12	30
1,1-Dichloroethane	20.04	N.D.	20.56	22.74	103	113	63-142	10	30
1,1-Dichloropropene	20.04	N.D.	19.2	22.29	96	111	54-145	15	30
1,2-Dichloroethane	20.04	N.D.	22.7	24.39	113	121	68-131	7	30
1,2-Dichloropropane	20.04	N.D.	18.81	20.88	94	104	62-135	10	30
2,2-Dichloropropane	20.04	N.D.	21.02	23.08	105	115	53-147	9	30
2-Butanone	150.3	N.D.	156.05	153.28	104	102	37-163	2	30
4-Methyl-2-pentanone	100.2	N.D.	96.33	98.72	96	98	46-139	2	30
Benzene	20.04	N.D.	18.78	20.94	94	104	55-143	11	30
Bromochloromethane	20.04	N.D.	19.26	21.22	96	105	60-137	10	30
Bromodichloromethane	20.04	N.D.	18.71	20.22	93	101	53-136	8	30
Carbon Tetrachloride	20.04	N.D.	21.15	23.93	106	119	45-153	12	30
Chloroform	20.04	N.D.	20.17	22.51	101	112	61-142	11	30
cis-1,2-Dichloroethene	20.04	N.D.	18.58	20.96	93	104	60-136	12	30
cis-1,3-Dichloropropene	20.04	N.D.	17.14	18.99	86	94	51-131	10	30
Cyclohexane	20.04	N.D.	17.94	22.62	90	112	57-151	23	30
Dibromomethane	20.04	N.D.	18.18	20.34	91	101	57-130	11	30
Methyl Tertiary Butyl Ether	20.04	N.D.	19.38	21.	97	104	55-129	8	30
Methylcyclohexane	20.04	N.D.	16.78	19.24	84	96	39-168	14	30
Methylene Chloride	20.04	N.D.	18.08	22.18	90	110	61-141	20	30
Toluene	20.04	N.D.	17.13	21.26	85	106	50-146	21	30
trans-1,2-Dichloroethene	20.04	N.D.	18.42	20.35	92	101	59-142	10	30
Trichloroethene	20.04	N.D.	17.87	20.66	89	103	53-144	15	30
1,1,1,2-Tetrachloroethane	20.04	N.D.	16.47	20.96	82	104	52-130	24	30
1,1,2,2-Tetrachloroethane	20.04	N.D.	15.55	22.22	78	110	40-152	35 *	30
1,1,2-Trichloroethane	20.04	N.D.	17.48	20.54	87	102	54-139	16	30
1,2,3-Trichloropropane	20.04	N.D.	17.04	24.26	85	121	45-154	35 *	30
1,2,4-Trimethylbenzene	20.04	N.D.	12.94	22.34	65	111	37-149	53 *	30
1,2-Dibromo-3-chloropropane	20.04	N.D.	13.84	19.45	69	97	30-139	34 *	30
1,2-Dibromoethane	20.04	N.D.	16.74	19.02	84	95	54-129	13	30
1,2-Dichlorobenzene	20.04	N.D.	11.54	19.14	58	95	36-133	49 *	30

Results are being reported on an as received basis.

GC/MS Volatiles

Fraction: Volatiles by GC/MS

UNSPK: 6526784 MS: 6526785 MSD: 6526786 Analyte	Batch: **B120241AA** (Sample number(s): 6526784-6526786, 6526788-6526793)								
	Spike Added ug/kg	Unspiked Conc ug/kg	MS Conc ug/kg	MSD Conc ug/kg	MS %Rec	MSD %Rec	%Rec Limits	%RPD	%RPD Limits
1,3,5-Trimethylbenzene	20.04	N.D.	13.59	23.32	68	116	38-150	53 *	30
1,3-Dichlorobenzene	20.04	N.D.	12.04	20.03	60	100	34-134	50 *	30
1,3-Dichloropropane	20.04	N.D.	18.02	20.7	90	103	58-129	14	30
1,4-Dichlorobenzene	20.04	N.D.	11.8	19.45	59	97	35-136	49 *	30
2-Chlorotoluene	20.04	N.D.	13.46	22.63	67	112	42-146	51 *	30
2-Hexanone	100.2	N.D.	86.12	93.69	86	93	32-160	8	30
4-Chlorotoluene	20.04	N.D.	13.	21.7	65	108	39-145	50 *	30
Bromobenzene	20.04	N.D.	14.1	23.06	70	115	43-139	48 *	30
Bromoform	20.04	N.D.	14.8	16.07	74	80	38-124	8	30
Chlorobenzene	20.04	N.D.	15.59	20.05	78	100	49-135	25	30
Dibromochloromethane	20.04	N.D.	16.69	18.96	83	94	51-128	13	30
Ethylbenzene	20.04	N.D.	15.67	20.92	78	104	44-141	29	30
Isopropylbenzene	20.04	1.89	15.73	22.41	69	102	38-144	35 *	30
m+p-Xylene	40.08	N.D.	30.4	40.45	76	101	44-137	28	30
n-Butylbenzene	20.04	N.D.	12.56	22.48	63	112	30-146	57 *	30
n-Propylbenzene	20.04	N.D.	14.43	25.1	72	125	39-157	54 *	30
o-Xylene	20.04	N.D.	14.5	19.25	72	96	42-137	28	30
p-Isopropyltoluene	20.04	N.D.	13.	23.54	65	117	29-152	58 *	30
sec-Butylbenzene	20.04	N.D.	13.91	25.47	69	127	33-157	59 *	30
Styrene	20.04	N.D.	13.59	18.19	68	90	35-134	29	30
tert-Butylbenzene	20.04	N.D.	13.04	23.56	65	117	41-152	57 *	30
Tetrachloroethene	20.04	N.D.	16.49	21.67	82	108	42-149	27	30
trans-1,3-Dichloropropene	20.04	N.D.	16.71	19.46	83	97	49-129	15	30
1,2,3-Trichlorobenzene	20.04	N.D.	7.34	11.65	37	58	10-140	45 *	30
1,2,4-Trichlorobenzene	20.04	N.D.	7.96	12.91	40	64	10-136	47 *	30
Hexachlorobutadiene	20.04	N.D.	12.13	23.83	61	118	10-155	65 *	30
Naphthalene	20.04	N.D.	7.34	11.05	37	55	10-138	40 *	30

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: DHR13
Matrix: SOLID

GC/MS Volatiles

Fraction: Volatiles by GC/MS

LCS: LCS1B46 LCSD: LCD1B46	Batch: **B120241AA** (Sample number(s): 6526784-6526786, 6526788-6526793)							
Analyte	**Spike Added ug/kg**	**LCS Conc ug/kg**	**LCSD Conc ug/kg**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Vinyl Acetate	100	137.44	139.6	137	140 *	56-137	2	30

LCS: LCSB46	Batch: **B120241AA** (Sample number(s): 6526784-6526786, 6526788-6526793)							
Analyte	**Spike Added ug/kg**	**LCS Conc ug/kg**	**LCSD Conc ug/kg**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Dichlorodifluoromethane	20	19.29		96		20-120		
Chloromethane	20	17.36		87		54-132		
Vinyl Chloride	20	17.59		88		53-120		
Bromomethane	20	17.23		86		32-162		
Chloroethane	20	15.9		79		37-154		
Trichlorofluoromethane	20	21.2		106		58-133		
1,1-Dichloroethene	20	18.34		92		73-123		
Acetone	150	186.57		124		32-209		
Carbon Disulfide	20	17.46		87		67-122		
Freon 113	20	19.8		99		61-126		
Methyl Acetate	20	25.71		129		61-152		
1,1,1-Trichloroethane	20	20.2		101		71-125		
1,1-Dichloroethane	20	20.53		103		80-120		
1,1-Dichloropropene	20	19.92		100		77-120		
1,2-Dichloroethane	20	23.52		118		71-129		
1,2-Dichloropropane	20	19.72		99		80-120		
2,2-Dichloropropane	20	20.19		101		72-123		
2-Butanone	150	160.42		107		46-153		
4-Methyl-2-pentanone	100	108.17		108		61-134		
Benzene	20	19.08		95		80-120		
Bromochloromethane	20	20.09		100		79-124		
Bromodichloromethane	20	20.29		101		78-120		
Carbon Tetrachloride	20	21.55		108		69-122		
Chloroform	20	20.79		104		80-120		
cis-1,2-Dichloroethene	20	19.09		95		80-120		
cis-1,3-Dichloropropene	20	19.1		96		80-120		
Cyclohexane	20	19.58		98		62-121		
Dibromomethane	20	20.43		102		80-120		
Methyl Tertiary Butyl Ether	20	20.27		101		74-121		
Methylcyclohexane	20	19.37		97		57-138		
Methylene Chloride	20	18.5		93		76-124		
Toluene	20	17.81		89		80-120		
trans-1,2-Dichloroethene	20	18.68		93		79-120		
Trichloroethene	20	19.1		95		80-120		
1,1,1,2-Tetrachloroethane	20	19.05		95		80-120		
1,1,2,2-Tetrachloroethane	20	17.89		89		71-123		

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GC/MS Volatiles

Fraction: Volatiles by GC/MS

LCS: LCSB46	Batch: **B120241AA** (Sample number(s): 6526784-6526786, 6526788-6526793)							
Analyte	**Spike Added ug/kg**	**LCS Conc ug/kg**	**LCSD Conc ug/kg**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
1,1,2-Trichloroethane	20	19.03		95		80-120		
1,2,3-Trichloropropane	20	19.2		96		71-123		
1,2,4-Trimethylbenzene	20	17.3		86		79-120		
1,2-Dibromo-3-chloropropane	20	18.49		92		58-120		
1,2-Dibromoethane	20	19.06		95		80-120		
1,2-Dichlorobenzene	20	17.75		89		79-120		
1,3,5-Trimethylbenzene	20	17.49		87		78-120		
1,3-Dichlorobenzene	20	17.5		88		78-120		
1,3-Dichloropropane	20	19.39		97		80-120		
1,4-Dichlorobenzene	20	17.37		87		79-120		
2-Chlorotoluene	20	16.97		85		78-120		
2-Hexanone	100	92.52		93		45-155		
4-Chlorotoluene	20	16.9		85		79-120		
Bromobenzene	20	17.64		88		79-120		
Bromoform	20	19.27		96		70-120		
Chlorobenzene	20	18.32		92		80-120		
Dibromochloromethane	20	19.61		98		77-120		
Ethylbenzene	20	18.21		91		80-120		
Isopropylbenzene	20	18.56		93		76-120		
m+p-Xylene	40	36.68		92		80-120		
n-Butylbenzene	20	17.68		88		72-120		
n-Propylbenzene	20	17.45		87		77-120		
o-Xylene	20	18.03		90		80-120		
p-Isopropyltoluene	20	17.76		89		75-120		
sec-Butylbenzene	20	17.61		88		75-120		
Styrene	20	17.17		86		76-120		
tert-Butylbenzene	20	17		85		75-120		
Tetrachloroethene	20	18.98		95		77-120		
trans-1,3-Dichloropropene	20	19.21		96		77-120		
1,2,3-Trichlorobenzene	20	17.41		87		64-120		
1,2,4-Trichlorobenzene	20	16.97		85		68-120		
Hexachlorobutadiene	20	20.33		102		57-120		
Naphthalene	20	15.85		79		59-123		

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: DHR13
Matrix: LIQUID

GC/MS Volatiles

Fraction: Volatiles by GC/MS

LCS: LCS1Y79 LCSD: LCD1Y79	Batch: **Y120301AA** (Sample number(s): 6526794)							
Analyte	**Spike Added ug/l**	**LCS Conc ug/l**	**LCSD Conc ug/l**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Vinyl Acetate	100	123.97	125.18	124	125	57-147	1	30

LCS: LCSY79 LCSD: LCDY79	Batch: **Y120301AA** (Sample number(s): 6526794)							
Analyte	**Spike Added ug/l**	**LCS Conc ug/l**	**LCSD Conc ug/l**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Dichlorodifluoromethane	20	16.23	16.41	81	82	47-120	1	30
Chloromethane	20	16.75	16.96	84	85	60-129	1	30
Vinyl Chloride	20	17.38	17.46	87	87	65-125	0	30
Bromomethane	20	17.47	17.06	87	85	44-120	2	30
Chloroethane	20	15.46	16.02	77	80	49-129	4	30
Freon 113	20	20.58	20.46	103	102	69-128	1	30
Trichlorofluoromethane	20	20.28	20.49	101	102	64-129	1	30
1,1-Dichloroethene	20	19.7	19.64	98	98	74-123	0	30
Methyl Acetate	20	33.04	33.34	165 *	167 *	64-151	1	30
Methyl Tertiary Butyl Ether	20	21.68	22.09	108	110	76-120	2	30
1,1,1,2-Tetrachloroethane	20	20.54	20.97	103	105	80-120	2	30
Acetone	150	194.66	193.85	130	129	49-234	0	30
Ethylbenzene	20	20.32	20.81	102	104	79-120	2	30
Carbon Disulfide	20	18.62	18.58	93	93	62-120	0	30
m+p-Xylene	40	41.14	41.11	103	103	80-120	0	30
Methylene Chloride	20	20.58	20.68	103	103	80-120	0	30
o-Xylene	20	20.01	20.17	100	101	80-120	1	30
Styrene	20	19.92	20.23	100	101	80-120	2	30
trans-1,2-Dichloroethene	20	20.74	20.7	104	103	80-120	0	30
1,1-Dichloroethane	20	21.53	21.5	108	108	79-120	0	30
Bromoform	20	20.18	20.23	101	101	61-120	0	30
Isopropylbenzene	20	20.33	20.68	102	103	77-120	2	30
1,1,2,2-Tetrachloroethane	20	20.78	21.4	104	107	71-120	3	30
2-Butanone	150	163.11	163.95	109	109	66-151	1	30
Bromobenzene	20	20.21	21.14	101	106	80-120	4	30
cis-1,2-Dichloroethene	20	20.97	21.21	105	106	80-120	1	30
Cyclohexane	20	20.94	21.29	105	106	65-125	2	30
1,2,3-Trichloropropane	20	21.6	22.19	108	111	80-120	3	30
2,2-Dichloropropane	20	22.38	22.41	112	112	77-124	0	30
Bromochloromethane	20	20.96	21.32	105	107	80-120	2	30
n-Propylbenzene	20	21.44	21.55	107	108	80-120	0	30
2-Chlorotoluene	20	20.31	21.32	102	107	80-120	5	30
Chloroform	20	21.73	21.82	109	109	77-122	0	30
1,1,1-Trichloroethane	20	21.29	21.42	106	107	75-127	1	30
1,3,5-Trimethylbenzene	20	20.76	21.48	104	107	75-120	3	30
1,1-Dichloropropene	20	20.71	20.91	104	105	80-120	1	30

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GC/MS Volatiles

Fraction: Volatiles by GC/MS

LCS: LCSY79 LCSD: LCDY79	Batch: Y120301AA (Sample number(s): 6526794)							
Analyte	Spike Added ug/l	LCS Conc ug/l	LCSD Conc ug/l	LCS %Rec	LCSD %Rec	%Rec Limits	%RPD	%RPD Limits
4-Chlorotoluene	20	20.02	20.58	100	103	80-120	3	30
Methylcyclohexane	20	20.28	20.74	101	104	71-132	2	30
1,2-Dichloroethane	20	22.58	22.64	113	113	70-130	0	30
Benzene	20	20.81	21.12	104	106	79-120	1	30
Carbon Tetrachloride	20	22.61	22.46	113	112	75-123	1	30
tert-Butylbenzene	20	19.61	19.88	98	99	80-120	1	30
Trichloroethene	20	20.39	21.05	102	105	80-120	3	30
1,2,4-Trimethylbenzene	20	21.46	21.68	107	108	74-120	1	30
1,2-Dichloropropane	20	20.23	20.51	101	103	78-120	1	30
Dibromomethane	20	21.34	21.5	107	107	80-120	1	30
sec-Butylbenzene	20	20.69	21.19	103	106	78-120	2	30
1,3-Dichlorobenzene	20	20.61	20.99	103	105	80-120	2	30
Bromodichloromethane	20	20.62	20.86	103	104	80-120	1	30
cis-1,3-Dichloropropene	20	20.07	20.47	100	102	80-120	2	30
p-Isopropyltoluene	20	20.55	20.98	103	105	80-120	2	30
1,4-Dichlorobenzene	20	20.52	21.01	103	105	80-120	2	30
4-Methyl-2-pentanone	100	99.04	101.71	99	102	70-121	3	30
Toluene	20	20.46	20.53	102	103	79-120	0	30
n-Butylbenzene	20	20.04	20.53	100	103	74-120	2	30
trans-1,3-Dichloropropene	20	20.49	20.62	102	103	79-120	1	30
1,1,2-Trichloroethane	20	21.05	21.27	105	106	80-120	1	30
1,2-Dichlorobenzene	20	20.44	20.91	102	105	80-120	2	30
1,2-Dibromo-3-chloropropane	20	21.68	21.99	108	110	56-126	1	30
Tetrachloroethene	20	20.22	20.75	101	104	80-121	3	30
1,2,4-Trichlorobenzene	20	19.79	20.41	99	102	67-120	3	30
1,3-Dichloropropane	20	21	21.37	105	107	80-120	2	30
2-Hexanone	100	98.51	98.89	99	99	65-136	0	30
Hexachlorobutadiene	20	19.94	20.22	100	101	58-120	1	30
Naphthalene	20	20.57	20.67	103	103	62-120	0	30
1,2,3-Trichlorobenzene	20	19.97	20.46	100	102	65-120	2	30
1,2-Dibromoethane	20	20.55	20.98	103	105	80-120	2	30
Dibromochloromethane	20	20.48	20.95	102	105	80-120	2	30
Chlorobenzene	20	20.73	20.68	104	103	80-120	0	30

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.: DHR13___

Lab File ID: bn15t01.d BFB Injection Date: 11/15/11

Instrument ID: HP09953 BFB Injection Time: 01:22

Matrix: (soil/water) SOIL Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	16.15
75	30.0 - 60.0% of mass 95	45.00
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.68
173	Less than 2.0% of mass 174	0.26 (0.33)1
174	Greater than 50.0% of mass 95	79.27
175	5.0 - 9.0% of mass 174	5.68 (7.16)1
176	Greater than 95.0%, but less than 101.0% of mass 174	76.73 (96.80)1
177	5.0 - 9.0% of mass 176	5.11 (6.66)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD300	bn16i01.d	11/15/11	02:04
02	VSTD100	bn16i02.d	11/15/11	02:36
03	VSTD50	bn16i03.d	11/15/11	02:58
04	VSTD20	bn16i04.d	11/15/11	03:33
05	VSTD10	bn16i05.d	11/15/11	03:55
06	VSTD4	bn16i06.d	11/15/11	04:30
07	MDL001 - MDL001	bn16i07.d	11/15/11	05:00
08	MDL001	bn16m01.d	11/15/11	05:28
09	VSTD300	bn15i10a.d	11/15/11	09:58
10	VSTD100	bn15i11a.d	11/15/11	10:23
11	VSTD50	bn15i12.d	11/15/11	11:05
12	VSTD20	bn15i13.d	11/15/11	11:29
13	VSTD10	bn15i14.d	11/15/11	11:56
14	VSTD4	bn15i15.d	11/15/11	12:19
15	MDL001 - MDL001	bn15m10.d	11/15/11	12:41

DHR13 0875

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID: bn15t02.d BFB Injection Date: 11/15/11

Instrument ID: HP09953 BFB Injection Time: 13:52

Matrix: (soil/water) SOIL Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	17.03
75	30.0 - 60.0% of mass 95	46.26
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.69
173	Less than 2.0% of mass 174	0.08 (0.10)1
174	Greater than 50.0% of mass 95	76.56
175	5.0 - 9.0% of mass 174	5.61 (7.33)1
176	Greater than 95.0%, but less than 101.0% of mass 174	74.79 (97.69)1
177	5.0 - 9.0% of mass 176	4.94 (6.60)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD50	bn15c05.d	11/15/11	14:23
02	VSTD50	bn15c06.d	11/15/11	14:45
03	LCSBICV	bn15v10.d	11/15/11	15:15

DHR13 2875

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.: DHR13

Lab File ID: bj24t01.d BFB Injection Date: 01/24/12

Instrument ID: HP09953 BFB Injection Time: 10:09

Matrix: (soil/water) SOIL Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	18.62
75	30.0 - 60.0% of mass 95	49.41
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.76
173	Less than 2.0% of mass 174	0.35 (0.40)1
174	Greater than 50.0% of mass 95	89.32
175	5.0 - 9.0% of mass 174	6.31 (7.07)1
176	Greater than 95.0%, but less than 101.0% of mass 174	86.14 (96.44)1
177	5.0 - 9.0% of mass 176	5.62 (6.52)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD50	bj24c01.d	01/24/12	10:33
02	VSTD50	bj24c02.d	01/24/12	11:02
03	VBLKB46	bj24b02.d	01/24/12	11:48
04	LCSB46	bj24l01.d	01/24/12	12:20
05	LCS1B46	bj24l02.d	01/24/12	12:42
06	LCD1B46	bj24l03.d	01/24/12	13:05
07	6526784	bj24s01.d	01/24/12	14:02
08	6526785MS	bj24s02.d	01/24/12	14:24
09	6526786MSD	bj24s03.d	01/24/12	14:47
10	6526790	bj24s04.d	01/24/12	15:09
11	6526792	bj24s05.d	01/24/12	15:31
12	6526784RE	bj24s23.d	01/24/12	15:54
13	6526793	bj24s06.d	01/24/12	16:16
14	6526795	bj24s07.d	01/24/12	16:38
15	6526796	bj24s08.d	01/24/12	17:00
16	6526788	bj24s09.d	01/24/12	17:22
17	6523626	bj24s10.d	01/24/12	17:45
18	6528342	bj24s11.d	01/24/12	18:08
19	6528345	bj24s13.d	01/24/12	18:52
20	6528347	bj24s14.d	01/24/12	19:15
21	6528349	bj24s15.d	01/24/12	19:37
22	6528350	bj24s16.d	01/24/12	19:59

DHR13 0077

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_DHR13___

Lab File ID: bj24t01.d BFB Injection Date: 01/24/12

Instrument ID: HP09953 BFB Injection Time: 10:09

Matrix: (soil/water) SOIL Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	18.62
75	30.0 - 60.0% of mass 95	49.41
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.76
173	Less than 2.0% of mass 174	0.35 (0.40)1
174	Greater than 50.0% of mass 95	89.32
175	5.0 - 9.0% of mass 174	6.31 (7.07)1
176	Greater than 95.0%, but less than 101.0% of mass 174	86.14 (96.44)1
177	5.0 - 9.0% of mass 176	5.62 (6.52)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
23	6528351	bj24s17.d	01/24/12	20:21
24	6528352	bj24s18.d	01/24/12	20:43
25	6528353	bj24s19.d	01/24/12	21:06
26	6526789	bj24s21.d	01/24/12	21:28
27	6526791	bj24s22.d	01/24/12	21:51

DHR13 6870

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_DHR13___

Lab File ID: yn14t01.d BFB Injection Date: 11/14/11

Instrument ID: HP09355 BFB Injection Time: 09:24

Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	19.09
75	30.0 - 60.0% of mass 95	51.00
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.96
173	Less than 2.0% of mass 174	0.00 (0.00)1
174	Greater than 50.0% of mass 95	86.92
175	5.0 - 9.0% of mass 174	6.18 (7.11)1
176	Greater than 95.0%, but less than 101.0% of mass 174	84.65 (97.38)1
177	5.0 - 9.0% of mass 176	5.64 (6.66)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD300	yn14i01.d	11/14/11	09:41
02	VSTD100	yn14i02.d	11/14/11	10:02
03	VSTD50	yn14i03.d	11/14/11	10:42
04	VSTD20	yn14i04.d	11/14/11	11:23
05	VSTD10	yn14i05.d	11/14/11	11:44
06	VSTD4	yn14i06.d	11/14/11	12:04
07	MDL001 - MDL001	yn14m01.d	11/14/11	12:25
08	YSMICV	yn14v02.d	11/14/11	14:02
09	VSTD300	yn14i08.d	11/14/11	14:48
10	VSTD100	yn14i09.d	11/14/11	15:08
11	VSTD50	yn14i10.d	11/14/11	15:29
12	VSTD20	yn14i11.d	11/14/11	15:49
13	VSTD10	yn14i12.d	11/14/11	16:10
14	VSTD4	yn14i13.d	11/14/11	16:31
15	MDL001 - MDL001	yn14m02.d	11/14/11	16:52
16	YLGICV	yn14v03.d	11/14/11	17:13

DHR13 0079

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.: DHR13___

Lab File ID: yd23t01.d BFB Injection Date: 12/23/11

Instrument ID: HP09355 BFB Injection Time: 14:29

Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	20.01
75	30.0 - 60.0% of mass 95	50.85
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.68
173	Less than 2.0% of mass 174	0.00 (0.00)1
174	Greater than 50.0% of mass 95	84.15
175	5.0 - 9.0% of mass 174	6.12 (7.27)1
176	Greater than 95.0%, but less than 101.0% of mass 174	80.31 (95.44)1
177	5.0 - 9.0% of mass 176	5.49 (6.84)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD300	yd23i01.d	12/23/11	14:47
02	VSTD100	yd23i02.d	12/23/11	15:08
03	VSTD50	yd23i03.d	12/23/11	15:29
04	VSTD20	yd23i04.d	12/23/11	15:49
05	VSTD10	yd23i05.d	12/23/11	16:10
06	VSTD4	yd23i06.d	12/23/11	16:30
07	MDL001 - MDL001	yd23m01.d	12/23/11	16:51
08	ICVYLG	yd23cv1.d	12/23/11	17:12

DHR13 0088

FORM V VOA

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_DHR13___

Lab File ID: yj30t01.d BFB Injection Date: 01/30/12

Instrument ID: HP09355 BFB Injection Time: 16:10

Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	18.52
75	30.0 - 60.0% of mass 95	51.46
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	7.14
173	Less than 2.0% of mass 174	0.00 (0.00)1
174	Greater than 50.0% of mass 95	87.74
175	5.0 - 9.0% of mass 174	6.69 (7.62)1
176	Greater than 95.0%, but less than 101.0% of mass 174	85.71 (97.68)1
177	5.0 - 9.0% of mass 176	6.20 (7.24)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD50	yj30c02.d	01/30/12	16:54
02	VSTD50	yj30c03.d	01/30/12	17:21
03	VBLKY79	yj30b01.d	01/30/12	17:41
04	LCSY79	yj30l01.d	01/30/12	18:02
05	LCDY79	yj30l02.d	01/30/12	18:22
06	LCS1Y79	yj30l03.d	01/30/12	18:43
07	LCD1Y79	yj30l04.d	01/30/12	19:04
08	6534448	yj30s01.d	01/30/12	20:00
09	6534451	yj30s02.d	01/30/12	20:20
10	6526794	yj30s03.d	01/30/12	20:41
11	6528070	yj30s04.d	01/30/12	21:02
12	6528071	yj30s05.d	01/30/12	21:22
13	6528072	yj30s06.d	01/30/12	21:43
14	6528074	yj30s07.d	01/30/12	22:03
15	6528073	yj30s08.d	01/30/12	22:24
16	6528489DL	yj30s09.d	01/30/12	22:45
17	6529865	yj30s10.d	01/30/12	23:05
18	6529866	yj30s11.d	01/30/12	23:26
19	6529862	yj30s12.d	01/30/12	23:47
20	6529863	yj30s14.d	01/31/12	00:28
21	6529864	yj30s16.d	01/31/12	01:09
22	6530138	yj30s17.d	01/31/12	01:30

DHR13 0001

FORM V VOA

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_DHR13___

Lab File ID: yj30t01.d BFB Injection Date: 01/30/12

Instrument ID: HP09355 BFB Injection Time: 16:10

Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	18.52
75	30.0 - 60.0% of mass 95	51.46
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	7.14
173	Less than 2.0% of mass 174	0.00 (0.00)1
174	Greater than 50.0% of mass 95	87.74
175	5.0 - 9.0% of mass 174	6.69 (7.62)1
176	Greater than 95.0%, but less than 101.0% of mass 174	85.71 (97.68)1
177	5.0 - 9.0% of mass 176	6.20 (7.24)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
23	6530139	yj30s18.d	01/31/12	01:50
24	6530140	yj30s19.d	01/31/12	02:11
25	6530141	yj30s20.d	01/31/12	02:31
26	6530142	yj30s21.d	01/31/12	02:52

DHR13 0082

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09953 Calibration Date(s): 11/15/11 11/15/11

Heated Purge: (Y/N) Y Calibration Times: 09:58 12:19

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: DB-624 ID: .18

LAB FILE ID: RRF 4 = bn15i15.d RRF 10= bn15i14.d RRF 20= bn15i13.d
RRF 50= bn15i12.d RRF100= bn15i11a.d RRF300= bn15i10a.d RRF =

COMPOUND	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	$\overline{RRF}$	% RSD	CAL-METHOD	
Dichlorodifluoromethane	0.3701	0.3933	0.3936	0.3616	0.3640	0.3615		0.3740	4	AVG	
Chloromethane	#0.4072	0.4337	0.4240	0.3872	0.3981	0.3890		0.4065	5	AVG	#
Vinyl Chloride	*0.3724	0.3930	0.3839	0.3569	0.3627	0.3535		0.3704	4	AVG	*
Bromomethane	0.2619	0.2805	0.2747	0.2484	0.2514	0.2132		0.2550	9	AVG	
Chloroethane	0.2027	0.2186	0.2094	0.1939	0.1904	0.1563		0.1952	11	AVG	
Dichlorofluoromethane	0.4768	0.5195	0.4720	0.4490	0.4759	0.4271		0.4700	7	AVG	
Trichlorofluoromethane	0.4253	0.4669	0.4555	0.4245	0.4318	0.4179		0.4370	4	AVG	
Ethanol	0.1496	0.1437	0.1376	0.1229	0.1257	0.1167		0.1327	10	AVG	
Freon 123a	0.3116	0.3346	0.3038	0.2858	0.3011	0.2793		0.3027	6	AVG	
Acrolein	2.4681	2.7337	2.6067	2.1050	2.3890	2.0943		2.3995	11	AVG	
1,1-Dichloroethene	*0.2541	0.2460	0.2551	0.2342	0.2451	0.2308		0.2442	4	AVG	*
Freon 113	0.2577	0.2560	0.2823	0.2627	0.2728	0.2580		0.2649	4	AVG	
Acetone	0.1001	0.0831	0.0722	0.0608	0.0602	0.0551		0.0719	24	2NDDEG	
Methyl Iodide	0.4866	0.4850	0.5028	0.4557	0.4847	0.4664		0.4802	3	AVG	
2-Propanol	0.9291	0.9583	1.0447	0.8580	0.9382	0.8990		0.9379	7	AVG	
Carbon Disulfide	0.8288	0.8165	0.8541	0.7872	0.8253	0.7687		0.8134	4	AVG	
Allyl Chloride	0.3812	0.3841	0.3597	0.3183	0.3507	0.3308		0.3541	7	AVG	
Methyl Acetate	0.1811	0.1600	0.1478	0.1199	0.1424	0.1369		0.1480	14	AVG	
Methylene Chloride	0.3167	0.2846	0.2839	0.2522	0.2694	0.2569		0.2773	8	AVG	
t-Butyl Alcohol	1.3341	1.3477	1.4400	1.1478	1.2343	1.1809		1.2808	9	AVG	
Acrylonitrile	4.8178	5.1118	5.0473	4.0415	4.5302	4.4092		4.6596	9	AVG	
trans-1,2-Dichloroethene	0.2715	0.2690	0.2799	0.2580	0.2761	0.2653		0.2700	3	AVG	
Methyl Tertiary Butyl Ether	0.7030	0.7212	0.7168	0.6325	0.6868	0.6831		0.6906	5	AVG	
n-Hexane	0.4049	0.3739	0.4043	0.3850	0.4028	0.3886		0.3932	3	AVG	
1,1-Dichloroethane	#0.4865	0.4835	0.5060	0.4556	0.4856	0.4719		0.4815	3	AVG	#
2-Chloro-1,3-Butadiene	0.3798	0.3838	0.4143	0.3789	0.3999	0.3827		0.3899	4	AVG	
di-Isopropyl Ether	0.8608	0.8733	0.8954	0.8006	0.8615	0.8264		0.8530	4	AVG	
Ethyl t-Butyl Ether	0.8017	0.8160	0.8314	0.7443	0.8138	0.7828		0.7983	4	AVG	
cis-1,2-Dichloroethene	0.2884	0.2901	0.3010	0.2705	0.2932	0.2877		0.2885	3	AVG	
1,2-Dichloroethene (total)	0.2800	0.2796	0.2904	0.2643	0.2846	0.2765		0.2792	3	AVG	
2,2-Dichloropropane	0.3514	0.3721	0.3931	0.3611	0.3851	0.3789		0.3736	4	AVG	
2-Butanone	0.1144	0.1162	0.1126	0.0884	0.1023	0.1025		0.1060	10	AVG	
Propionitrile	1.6715	1.7504	1.8403	1.5795	1.7214	1.6920		1.7092	5	AVG	
Methacrylonitrile	4.6940	5.2276	5.3820	4.6995	5.1528	5.0708		5.0378	6	AVG	
Bromochloromethane	0.1301	0.1430	0.1394	0.1195	0.1370	0.1386		0.1346	6	AVG	
Tetrahydrofuran	1.4300	1.5574	1.5870	1.3039	1.5145	1.4977		1.4817	7	AVG	
Chloroform	*0.4733	0.4621	0.4760	0.4180	0.4498	0.4390		0.4530	5	AVG	*
1,1,1-Trichloroethane	0.4932	0.4413	0.4616	0.3933	0.4193	0.4058		0.4357	9	AVG	
Cyclohexane	0.4605	0.4662	0.5059	0.4820	0.4964	0.4775		0.4814	4	AVG	
Cyclohexane(mz69)	0.1442	0.1388	0.1528	0.1466	0.1517	0.1475		0.1469	3	AVG	
Cyclohexane(mz84)	0.4067	0.3941	0.4271	0.4048	0.4194	0.4048		0.4095	3	AVG	
1,1-Dichloropropene	0.3612	0.3669	0.3868	0.3495	0.3695	0.3621		0.3660	3	AVG	
Carbon Tetrachloride	0.3048	0.3217	0.3485	0.3225	0.3446	0.3441		0.3310	5	AVG	
Benzene	1.0737	1.0962	1.1386	1.0231	1.0940	1.0589		1.0807	4	AVG	
Isobutyl Alcohol	0.4161	0.4135	0.4572	0.3736	0.4039	0.4084		0.4121	7	AVG	
1,2-Dichloroethane	0.3078	0.3110	0.3204	0.2833	0.3083	0.3050		0.3060	4	AVG	
1,2-Dichloroethane(mz98)	0.0275	0.0292	0.0309	0.0274	0.0301	0.0305		0.0293	5	AVG	
t-Amyl Methyl Ether	0.6889	0.7140	0.7231	0.6381	0.7028	0.7015		0.6947	4	AVG	
n-Heptane	0.3826	0.3729	0.3879	0.3726	0.4195	0.3983		0.3890	5	AVG	
n-Butanol	0.3197	0.3356	0.3965	0.3331	0.3785	0.3798		0.3572	9	AVG	
Trichloroethene	0.2732	0.2825	0.2927	0.2665	0.2847	0.2829		0.2804	3	AVG	
Methylcyclohexane	0.4846	0.5191	0.5029	0.4569	0.5226	0.5072		0.4989	5	AVG	

Minimum RRF for SPCC(#) = 0.10
(0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %RSD for CCC(*) = 30%

DHR13 6683

FORM VI VOA

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09953 Calibration Date(s): 11/15/11 11/15/11

Heated Purge: (Y/N) Y Calibration Times: 09:58 12:19

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: DB-624 ID: .18

LAB FILE ID: RRF 4 = bn15i15.d RRF 10= bn15i14.d RRF 20= bn15i13.d
RRF 50= bn15i12.d RRF100= bn15i11a.d RRF300= bn15i10a.d RRF =

COMPOUND	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	$\overline{RRF}$	% RSD	CAL. METHOD	
Methylcyclohexane(mz98)	0.2180	0.2343	0.2295	0.2081	0.2391	0.2352		0.2274	5	AVG	
1,2-Dichloropropane	*0.2667	0.2872	0.2967	0.2662	0.2905	0.2877		0.2825	5	AVG	*
Dibromomethane	0.1520	0.1588	0.1619	0.1447	0.1591	0.1615		0.1563	4	AVG	
1,4-Dioxane	0.1267	0.1360	0.1568	0.1377	0.1504	0.1487		0.1427	8	AVG	
Methyl Methacrylate	0.1526	0.1625	0.1715	0.1510	0.1691	0.1791		0.1643	7	AVG	
Bromodichloromethane	0.2909	0.3064	0.3296	0.3007	0.3343	0.3385		0.3167	6	AVG	
2-Nitropropane	6.2831	4.4039	4.2174	2.6651	3.0563	2.0601		3.7810	40	2NDDEG	
2-Chloroethyl Vinyl Ether	0.0473	0.0540	0.0591	0.0550	0.0667	0.0738		0.0593	16	1STDEG	
cis-1,3-Dichloropropene	0.3577	0.3860	0.4090	0.3746	0.4189	0.4253		0.3952	7	AVG	
4-Methyl-2-Pentanone	0.2033	0.2324	0.2459	0.1875	0.2337	0.2241		0.2211	10	AVG	
Toluene	*0.9678	1.0012	1.0458	0.9246	0.9793	0.9523		0.9785	4	AVG	*
trans-1,3-Dichloropropene	0.4237	0.4609	0.5113	0.4682	0.5186	0.5303		0.4855	8	AVG	
Ethyl Methacrylate	0.3946	0.4124	0.4532	0.3970	0.4495	0.4658		0.4287	7	AVG	
1,1,2-Trichloroethane	0.2964	0.3024	0.3195	0.2768	0.3021	0.3046		0.3003	5	AVG	
Tetrachloroethene	0.4286	0.4416	0.4696	0.4241	0.4452	0.4458		0.4425	4	AVG	
1,3-Dichloropropane	0.5236	0.5412	0.5606	0.4891	0.5321	0.5330		0.5299	4	AVG	
2-Hexanone	0.1057	0.1237	0.1413	0.1053	0.1317	0.1251		0.1221	12	AVG	
Dibromochloromethane	0.2944	0.3183	0.3538	0.3202	0.3610	0.3762		0.3373	9	AVG	
1,2-Dibromoethane	0.2981	0.3112	0.3234	0.2880	0.3168	0.3202		0.3096	4	AVG	
Chlorobenzene	#1.1065	1.1277	1.1812	1.0279	1.0996	1.0792		1.1037	5	AVG	#
1,1,1,2-Tetrachloroethane	0.3268	0.3695	0.4004	0.3532	0.3845	0.3923		0.3711	7	AVG	
Ethylbenzene	*1.8015	1.9157	2.0199	1.8110	1.8715	1.7702		1.8650	5	AVG	*
m+p-Xylene	0.7040	0.7506	0.7890	0.7047	0.7429	0.6989		0.7317	5	AVG	
Xylene (Total)	0.6986	0.7517	0.7912	0.7055	0.7440	0.7095		0.7334	5	AVG	
o-Xylene	0.6878	0.7538	0.7954	0.7070	0.7463	0.7305		0.7368	5	AVG	
Styrene	1.0907	1.1958	1.2730	1.1376	1.2169	1.1726		1.1811	5	AVG	
Bromoform	#0.1734	0.1931	0.2269	0.2018	0.2312	0.2551		0.2136	14	AVG	#
Isopropylbenzene	1.7742	1.9286	2.0214	1.8544	1.9291	1.7786		1.8810	5	AVG	
Cyclohexanone	0.4210	0.4648	0.4562	0.4094	0.4978	0.4818		0.4552	8	AVG	
Bromobenzene	0.8173	0.8625	0.8975	0.7696	0.7968	0.7901		0.8223	6	AVG	
1,1,2,2-Tetrachloroethane	#0.7535	0.7677	0.8669	0.7006	0.7383	0.7265		0.7589	8	AVG	#
1,2,3-Trichloropropane	0.1941	0.2050	0.2222	0.1824	0.1896	0.1896		0.1971	7	AVG	
trans-1,4-Dichloro-2-Butene	0.1920	0.1959	0.2076	0.1841	0.1948	0.1910		0.1942	4	AVG	
n-Propylbenzene	4.0188	4.2091	4.3650	3.9254	3.9059	3.2628		3.9478	10	AVG	
2-Chlorotoluene	0.8198	0.8825	0.9132	0.8039	0.8177	0.7895		0.8378	6	AVG	
1,3,5-Trimethylbenzene	2.7433	2.9680	3.0866	2.8469	2.8947	2.4775		2.8362	7	AVG	
4-Chlorotoluene	0.8442	0.9109	0.9463	0.8384	0.8633	0.7762		0.8632	7	AVG	
tert-Butylbenzene	0.6306	0.6628	0.6913	0.6445	0.6876	0.6427		0.6599	4	AVG	
Pentachloroethane	0.3939	0.4509	0.4801	0.4237	0.5187	0.5188		0.4644	11	AVG	
1,2,4-Trimethylbenzene	2.8247	3.0664	3.1718	2.9003	2.9195	2.5996		2.9137	7	AVG	
sec-Butylbenzene	3.7575	3.8066	3.9056	3.6282	3.7544	3.0997		3.6587	8	AVG	
1,3-Dichlorobenzene	1.5932	1.7101	1.7452	1.5643	1.5881	1.5389		1.6233	5	AVG	
p-Isopropyltoluene	3.1693	3.3346	3.4315	3.2192	3.3398	2.8055		3.2167	7	AVG	
1,4-Dichlorobenzene	1.8491	1.8784	1.8629	1.6059	1.6222	1.5678		1.7310	8	AVG	
1,2,3-Trimethylbenzene	2.8708	3.1109	3.0515	2.6357	2.9612	2.5755		2.8676	8	AVG	
Benzyl Chloride	1.0480	1.2514	1.4447	1.2825	1.4205	1.4569		1.3173	12	AVG	
1,2-Dichlorobenzene	1.6254	1.7003	1.7648	1.5485	1.5985	1.4187		1.6094	8	AVG	
n-Butylbenzene	1.6570	1.7052	1.7490	1.6207	1.7164	1.4177		1.6443	7	AVG	
1,3-Diethylbenzene	1.7249	1.9164	1.9015	1.6957	1.9327	1.7683		1.8232	6	AVG	
1,4-Diethylbenzene	1.8943	2.0751	2.0561	1.8025	2.0363	1.8059		1.9450	6	AVG	
1,2-Diethylbenzene	1.6390	1.7292	1.7084	1.4700	1.6756	1.5451		1.6279	6	AVG	
1,2-Dibromo-3-Chloropropane	0.1169	0.1445	0.1533	0.1301	0.1368	0.1407		0.1370	9	AVG	

Minimum RRF for SPCC(#) = 0.10
(0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %RSD for CCC(*) = 30%

DH813 2884

FORM VI VOA

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09953 Calibration Date(s): 11/15/11 11/15/11

Heated Purge: (Y/N) Y Calibration Times: 09:58 12:19

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: DB-624 ID: .18

LAB FILE ID: RRF 4 = bn15i15.d RRF 10= bn15i14.d RRF 20= bn15i13.d
RRF 50= bn15i12.d RRF100= bn15i11a.d RRF300= bn15i10a.d RRF =

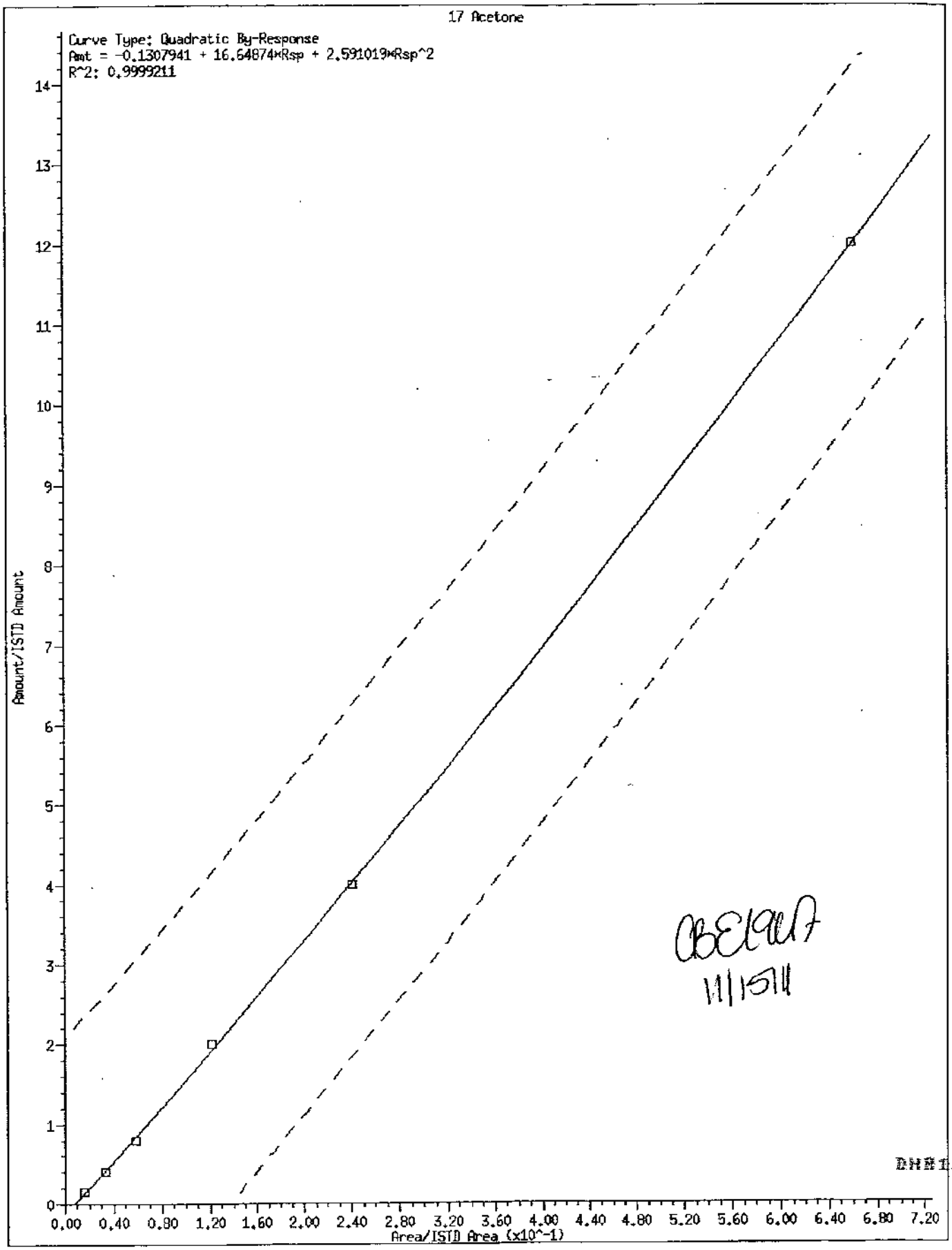
COMPOUND	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	$\overline{RRF}$	% RSD	CAL. METHOD
1,2,4-Trichlorobenzene	1.2737	1.3817	1.3247	1.1987	1.2334	1.1587		1.2618	7	AVG
Hexachlorobutadiene	0.6059	0.6131	0.6049	0.5796	0.6708	0.6049		0.6132	5	AVG
Naphthalene	3.3619	3.4153	3.3934	2.8042	2.8536	2.3904		3.0365	14	AVG
1,2,3-Trichlorobenzene	1.2386	1.3652	1.3030	1.1565	1.1754	1.0850		1.2206	8	AVG
2-Methylnaphthalene	2.5413	2.2809	2.3690	1.9032	2.2051	1.5582		2.1429	17	2NDDEG
Dibromofluoromethane	0.2376	0.2376	0.2383	0.2371	0.2368	0.2370		0.2374	0	AVG
Dibromofluoromethane(mz111)	0.2427	0.2450	0.2444	0.2427	0.2424	0.2413		0.2431	1	AVG
1,2-Dichloroethane-d4	0.0520	0.0522	0.0514	0.0509	0.0516	0.0497		0.0513	2	AVG
1,2-Dichloroethane-d4(mz104)	0.0331	0.0326	0.0326	0.0322	0.0321	0.0324		0.0325	1	AVG
1,2-Dichloroethane-d4(mz65)	0.2408	0.2418	0.2414	0.2347	0.2314	0.2308		0.2368	2	AVG
Toluene-d8	1.3905	1.3795	1.3945	1.4006	1.3827	1.3713		1.3865	1	AVG
Toluene-d8(mz100)	0.9077	0.8989	0.9115	0.9105	0.9107	0.9024		0.9069	1	AVG
4-Bromofluorobenzene	0.4971	0.4990	0.4937	0.4964	0.4999	0.5027		0.4981	1	AVG
4-Bromofluorobenzene(mz174)	0.4067	0.4094	0.4047	0.4089	0.4054	0.4065		0.4069	0	AVG

Average %RSD 7

Minimum RRF for SPCC(#) = 0.10
(0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %RSD for CCC(*) = 30%

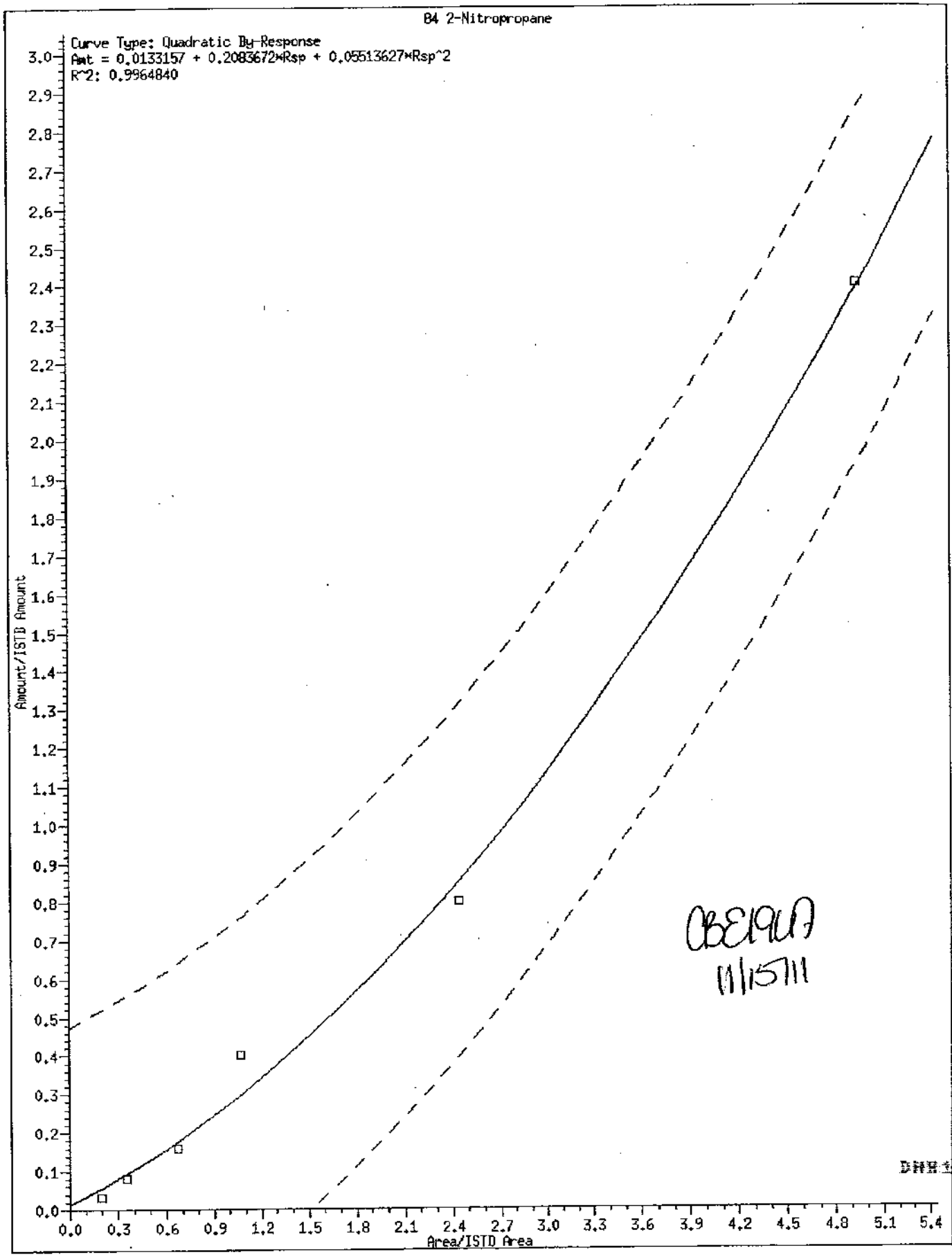
DHB13 8885

FORM VI VOA

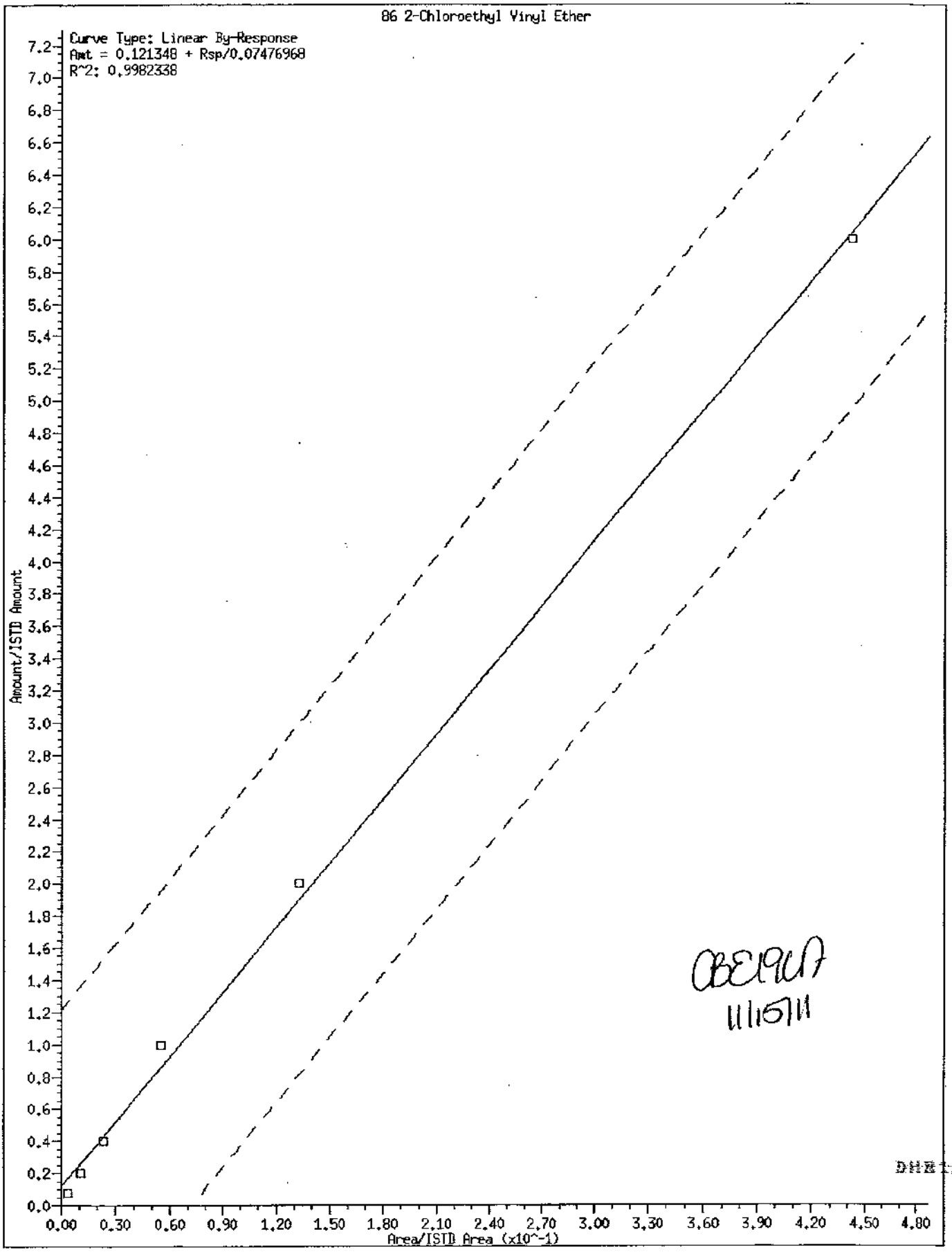


CBE1947
11/15/11

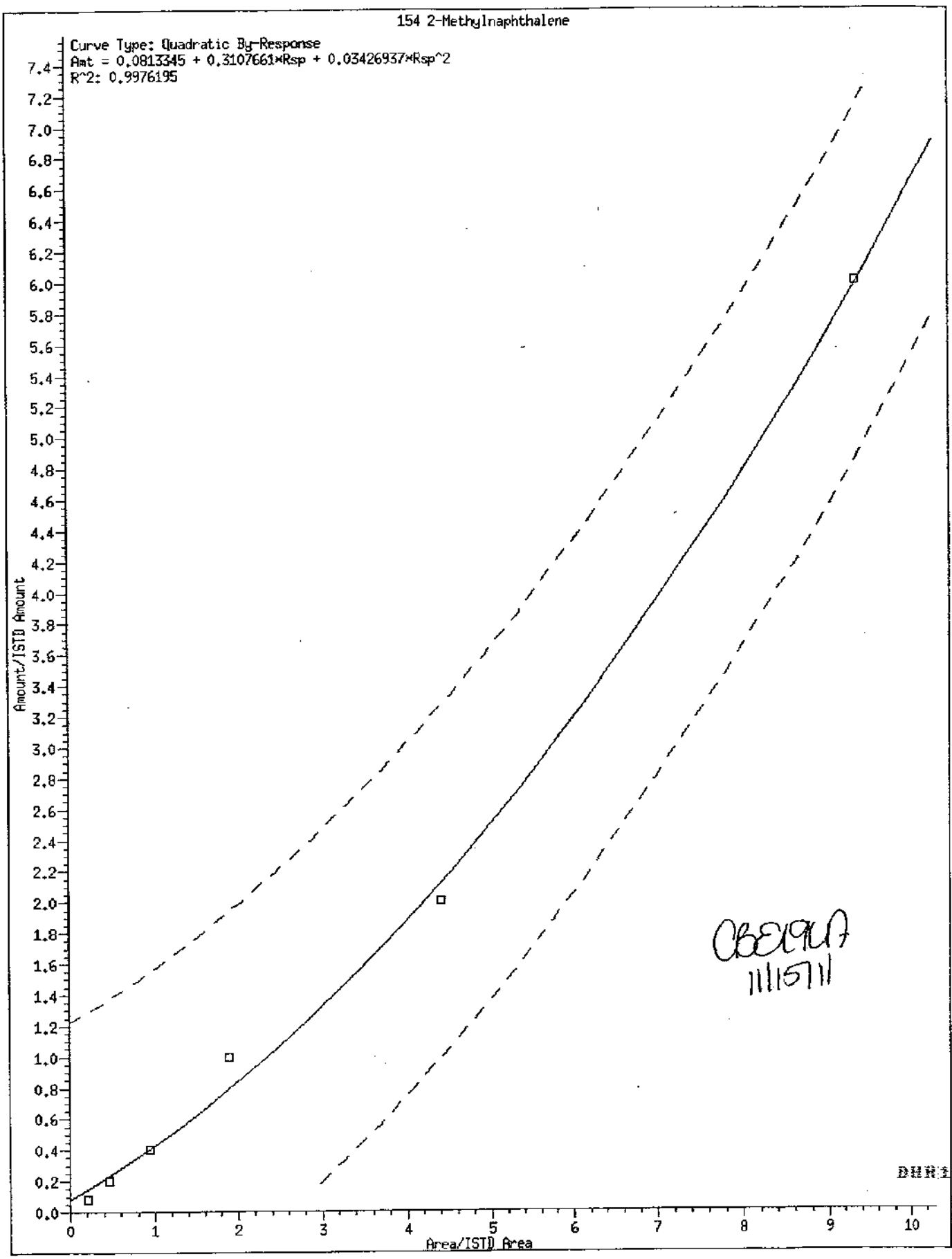
DH013 0006


B4 2-Nitropropane
Curve Type: Quadratic By-Response
Amt = 0.0133157 + 0.2083672*Rsp + 0.05513627*Rsp^2
R^2: 0.9964840
Amount/ISTD Amount
Area/ISTD Area
CBE19UA
11/15/11

DNR13 0887


86 2-Chloroethyl Vinyl Ether
Curve Type: Linear By-Response
Amt = 0.121348 + Rsp/0.07476968
R^2: 0.9982338
Amount/ISTD Amount
Area/ISTD Area (x10^-1)
CBE1967
11/15/11

DHB13 0000


154 2-Methylnaphthalene
Curve Type: Quadratic By-Response
Amt = 0.0813345 + 0.3107661*Rsp + 0.03426937*Rsp^2
R^2: 0.9976195
Amount/ISTD Amount
Area/ISTD Area
CBE19LA
11/15/11

DHR13 8889

Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem2/HP09953.i/11nov16a.b/bn15i10a.d VSTD300
/chem2/HP09953.i/11nov16a.b/bn15i11a.d VSTD100
/chem2/HP09953.i/11nov16a.b/bn15i12.d VSTD050
/chem2/HP09953.i/11nov16a.b/bn15i13.d VSTD020
/chem2/HP09953.i/11nov16a.b/bn15i14.d VSTD010
/chem2/HP09953.i/11nov16a.b/bn15i15.d VSTD004

Area Summary

File ID:

Internal Standard Name	bn15i10a.d	bn15i11a.d	bn15i12.d	bn15i13.d	bn15i14.d	bn15i15.d	Avg. Area	%RSD	In Spec
t-Butyl Alcohol-d10	115180	108381	105924	102290	105403	111280	108076	4	Yes
Fluorobenzene	1181851	1159400	1124834	1096935	1078561	1079294	1120146	4	Yes
Chlorobenzene-d5	827804	800072	772917	749992	740631	732630	770674	5	Yes
1,4-Dichlorobenzene-d4	502070	462195	431283	415779	414422	407384	438856	8	Yes

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

File ID:

Internal Standard Name	bn15i10a.d	bn15i11a.d	bn15i12.d	bn15i13.d	bn15i14.d	bn15i15.d	Avg. RT
t-Butyl Alcohol-d10	2.222	2.228	2.222	2.228	2.216	2.222	2.223
Fluorobenzene	4.357	4.363	4.357	4.364	4.357	4.358	4.359
Chlorobenzene-d5	7.545	7.545	7.545	7.545	7.545	7.545	7.545
1,4-Dichlorobenzene-d4	9.528	9.528	9.528	9.529	9.528	9.529	9.528

* indicates the retention time is greater than 30 seconds from the average RT.

Report generated on 11/15/2011 at 13:03.

DHR13 0898

INITIAL CALIBRATION VERIFICATION

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09953 ICV Date: 11/15/11 Time: 15:15

Lab File ID: bn15v10.d Init. Calib. Date(s): 11/15/11 11/15/11

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: DB-624 ID: .18

	COMPOUND	RRF	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	Dichlorodifluoromethane	0.3740	0.2838	15.18	20	-24	
#	Chloromethane	0.4065	0.3492	17.18	20	-14	#
*	Vinyl Chloride	0.3704	0.3233	17.46	20	-13	*
	Bromomethane	0.2550	0.2189	17.17	20	-14	
	Chloroethane	0.1952	0.1695	17.37	20	-13	
	Dichlorofluoromethane	0.4700	0.4465	19.00	20	-5	
	Trichlorofluoromethane	0.4370	0.4027	18.43	20	-8	
	Ethanol	0.1327	0.1435	1081.48	1000	8	
	Freon 123a	0.3027	0.2941	19.44	20	-3	
	Acrolein	2.3995	2.3349	145.96	150	-3	
*	1,1-Dichloroethene	0.2442	0.2633	21.56	20	8	*
	Freon 113	0.2649	0.2729	20.60	20	3	
	Acetone	0.0719	0.0691	171.53	150	14	
	Methyl Iodide	0.4802	0.4959	20.65	20	3	
	2-Propanol	0.9379	0.9242	147.81	150	-1	
	Carbon Disulfide	0.8134	0.8386	20.62	20	3	
	Allyl Chloride	0.3541	0.3442	19.44	20	-3	
	Methyl Acetate	0.1480	0.1445	19.52	20	-2	
	Methylene Chloride	0.2773	0.2892	20.86	20	4	
	t-Butyl Alcohol	1.2808	1.7536	273.83	200	37	
	Acrylonitrile	4.6596	4.1318	88.67	100	-11	
	trans-1,2-Dichloroethene	0.2700	0.2832	20.98	20	5	
	Methyl Tertiary Butyl Ether	0.6906	0.7044	20.40	20	2	
	n-Hexane	0.3932	0.3913	19.90	20	0	
#	1,1-Dichloroethane	0.4815	0.4995	20.75	20	4	#
	2-Chloro-1,3-Butadiene	0.3899	0.3943	20.22	20	1	
	di-Isopropyl Ether	0.8530	0.8513	19.96	20	0	
	Ethyl t-Butyl Ether	0.7983	0.8036	20.13	20	1	
	cis-1,2-Dichloroethene	0.2885	0.3012	20.88	20	4	
	1,2-Dichloroethene (total)	0.2792	0.2922	41.86	40	5	
	2,2-Dichloropropane	0.3736	0.3861	20.67	20	3	
	2-Butanone	0.1060	0.1058	149.66	150	0	
	Propionitrile	1.7092	1.6546	145.21	150	-3	
	Methacrylonitrile	5.0378	4.9313	146.83	150	-2	
	Bromochloromethane	0.1346	0.1321	19.62	20	-2	
	Tetrahydrofuran	1.4817	1.3979	94.34	100	-6	

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

DHN13 0891

INITIAL CALIBRATION VERIFICATION

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09953 ICV Date: 11/15/11 Time: 15:15

Lab File ID: bn15v10.d Init. Calib. Date(s): 11/15/11 11/15/11

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: DB-624 ID: .18

	COMPOUND	RRF	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT	
*	Chloroform	0.4530	0.4695	20.73	20	4	*
	1,1,1-Trichloroethane	0.4357	0.4367	20.04	20	0	
	Cyclohexane	0.4814	0.4824	20.04	20	0	
	1,1-Dichloropropene	0.3660	0.3619	19.78	20	-1	
	Carbon Tetrachloride	0.3310	0.3144	19.00	20	-5	
	Benzene	1.0807	1.1204	20.73	20	4	
	Isobutyl Alcohol	0.4121	0.4005	485.89	500	-3	
	1,2-Dichloroethane	0.3060	0.3194	20.88	20	4	
	t-Amyl Methyl Ether	0.6947	0.6877	19.80	20	-1	
	n-Heptane	0.3890	0.3954	20.33	20	2	
	n-Butanol	0.3572	0.3451	966.12	1000	-3	
	Trichloroethene	0.2804	0.2743	19.56	20	-2	
	Methylcyclohexane	0.4989	0.4776	19.15	20	-4	
*	1,2-Dichloropropane	0.2825	0.2896	20.50	20	3	*
	Dibromomethane	0.1563	0.1604	20.53	20	3	
	1,4-Dioxane	0.1427	0.1406	492.58	500	-1	
	Methyl Methacrylate	0.1643	0.1588	19.33	20	-3	
	Bromodichloromethane	0.3167	0.3188	20.13	20	1	
	2-Nitropropane	3.7810	2.7603	15.50	20	-22	
	2-Chloroethyl Vinyl Ether	0.0593	0.0511	19.73	20	-1	
	cis-1,3-Dichloropropene	0.3952	0.4023	20.36	20	2	
	4-Methyl-2-Pentanone	0.2211	0.2220	100.37	100	0	
*	Toluene	0.9785	0.9435	19.28	20	-4	*
	trans-1,3-Dichloropropene	0.4855	0.4838	19.93	20	0	
	Ethyl Methacrylate	0.4287	0.4221	19.69	20	-2	
	1,1,2-Trichloroethane	0.3003	0.3071	20.45	20	2	
	Tetrachloroethene	0.4425	0.3891	17.59	20	-12	
	1,3-Dichloropropane	0.5299	0.5482	20.69	20	3	
	2-Hexanone	0.1221	0.1214	99.36	100	-1	
	Dibromochloromethane	0.3373	0.3295	19.54	20	-2	
	1,2-Dibromoethane	0.3096	0.3182	20.55	20	3	
#	Chlorobenzene	1.1037	1.0435	18.91	20	-5	#
	1,1,1,2-Tetrachloroethane	0.3711	0.3443	18.56	20	-7	
*	Ethylbenzene	1.8650	1.6777	17.99	20	-10	*
	m+p-Xylene	0.7317	0.6557	35.84	40	-10	
	Xylene (Total)	0.7334	0.4546	53.72	60	-10	

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)

Maximum %Drift for CCC(*)=20%

DHR13-8892

INITIAL CALIBRATION VERIFICATION

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09953 ICV Date: 11/15/11 Time: 15:15

Lab File ID: bn15v10.d Init. Calib. Date(s): 11/15/11 11/15/11

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: DB-624 ID: .18

			ACTUAL	TRUE	%	
COMPOUND	RRF	RRF	CONC.	CONC.	DRIFT	
o-Xylene	0.7368	0.6585	17.87	20	-11	
Styrene	1.1811	1.0747	18.20	20	-9	
# Bromoform	0.2136	0.1956	18.32	20	-8	#
Isopropylbenzene	1.8810	1.6268	17.30	20	-14	
Cyclohexanone	0.4552	0.4263	468.30	500	-6	
Bromobenzene	0.8223	0.7613	18.52	20	-7	
# 1,1,2,2-Tetrachloroethane	0.7589	0.7629	20.11	20	1	#
1,2,3-Trichloropropane	0.1971	0.2036	20.66	20	3	
trans-1,4-Dichloro-2-Butene	0.1942	0.2068	106.49	100	6	
n-Propylbenzene	3.9478	3.5311	17.89	20	-11	
2-Chlorotoluene	0.8378	0.7491	17.88	20	-11	
1,3,5-Trimethylbenzene	2.8362	2.4636	17.37	20	-13	
4-Chlorotoluene	0.8632	0.7715	17.87	20	-11	
tert-Butylbenzene	0.6599	0.5568	16.88	20	-16	
Pentachloroethane	0.4644	0.4282	18.44	20	-8	
1,2,4-Trimethylbenzene	2.9137	2.5370	17.41	20	-13	
sec-Butylbenzene	3.6587	3.1541	17.24	20	-14	
1,3-Dichlorobenzene	1.6233	1.4194	17.49	20	-13	
p-Isopropyltoluene	3.2167	2.7116	16.86	20	-16	
1,4-Dichlorobenzene	1.7310	1.5135	17.49	20	-13	
1,2,3-Trimethylbenzene	2.8676	2.8060	19.57	20	-2	
Benzyl Chloride	1.3173	1.2033	18.27	20	-9	
1,2-Dichlorobenzene	1.6094	1.4226	17.68	20	-12	
n-Butylbenzene	1.6443	1.3838	16.83	20	-16	
1,3-Diethylbenzene	1.8232	1.7452	19.14	20	-4	
1,4-Diethylbenzene	1.9450	1.8362	18.88	20	-6	
1,2-Diethylbenzene	1.6279	1.5267	18.76	20	-6	
1,2-Dibromo-3-Chloropropane	0.1370	0.1316	19.21	20	-4	
1,2,4-Trichlorobenzene	1.2618	1.0387	16.46	20	-18	
Hexachlorobutadiene	0.6132	0.4550	14.84	20	-26	
Naphthalene	3.0365	2.6887	17.71	20	-11	
1,2,3-Trichlorobenzene	1.2206	1.0342	16.95	20	-15	
2-Methylnaphthalene	2.1429	2.1657	18.81	20	-6	

Average %Drift 7

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)

Maximum %Drift for CCC(*)=20%

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09953 Calibration Date(s): 11/15/11 11/15/11

Heated Purge: (Y/N) Y Calibration Times: 02:04 04:30

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: DB-624 ID: .18

LAB FILE ID: RRF 4 = bn16i06.d RRF 10= bn16i05.d RRF 20= bn16i04.d
RRF 50= bn16i03.d RRF100= bn16i02.d RRF300= bn16i01.d RRF =

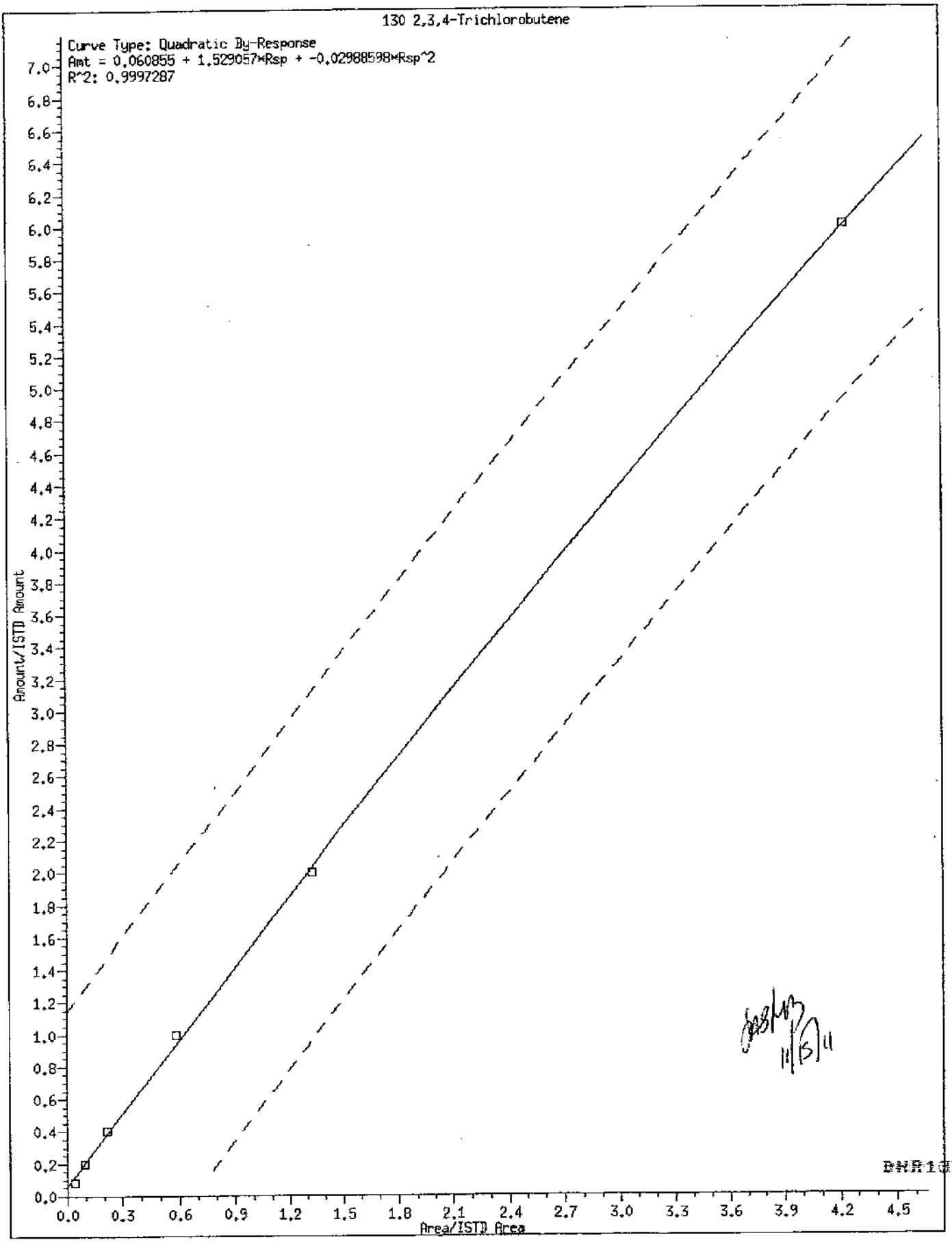
COMPOUND	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	$\overline{RRF}$	% RSD	CAL. METHOD
Chlorotrifluoroethene	0.4358	0.3930	0.4009	0.4508	0.4262	0.3820		0.4148	6	AVG
Ethyl Ether	0.2283	0.1952	0.2116	0.2015	0.2102	0.2029		0.2083	6	AVG
Freon 133a	0.7184	0.6529	0.6800	0.7167	0.6775	0.6016		0.6745	6	AVG
Acetonitrile	1.6573	1.6613	1.3025	1.5868	1.3677	1.2806		1.4760	12	AVG
Vinyl Acetate	0.3018	0.2566	0.2928	0.2655	0.3082	0.3066		0.2886	8	AVG
Ethyl Acetate	0.2406	0.1925	0.2176	0.1941	0.2309	0.2139		0.2149	9	AVG
Isopropyl Acetate	0.4378	0.3651	0.4179	0.3816	0.4459	0.4283		0.4128	8	AVG
n-Propyl Acetate	0.0767	0.0717	0.0861	0.0812	0.0971	0.0943		0.0845	12	AVG
3,4-Dichloro-1-Butene	0.3337	0.3254	0.3801	0.4061	0.4417	0.4737		0.3934	15	AVG
Butyl Acetate	0.3968	0.3438	0.4429	0.4270	0.5128	0.4860		0.4349	14	AVG
2,3,4-Trichlorobutene	0.4831	0.4608	0.5378	0.5796	0.6628	0.7055		0.5716	17	2NDDEG

Average %RSD 13

Minimum RRF for SPCC(#) = 0.10
(0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %RSD for CCC(*) = 30%

DHR13 0894

FORM VI VOA



11/15/11

DNR13 8895

Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem2/HP09953.i/11nov16a.b/bn16i01.d VSTD300
/chem2/HP09953.i/11nov16a.b/bn16i02.d VSTD100
/chem2/HP09953.i/11nov16a.b/bn16i03.d VSTD050
/chem2/HP09953.i/11nov16a.b/bn16i04.d VSTD020
/chem2/HP09953.i/11nov16a.b/bn16i05.d VSTD010
/chem2/HP09953.i/11nov16a.b/bn16i06.d VSTD004

Area Summary

File ID:

Internal Standard Name	bn16i01.d	bn16i02.d	bn16i03.d	bn16i04.d	bn16i05.d	bn16i06.d	Avg. Area	%RSD	In Spec
t-Butyl Alcohol-d10	119350	113543	91752	114216	97365	120798	109504	11	Yes
Fluorobenzene	1168402	1066675	1048912	1086707	1090310	1088845	1091642	4	Yes
Chlorobenzene-d5	811455	727713	715211	733781	745745	743111	746169	5	Yes
1,4-Dichlorobenzene-d4	439411	390629	381802	402990	399996	401736	402761	5	Yes

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

File ID:

Internal Standard Name	bn16i01.d	bn16i02.d	bn16i03.d	bn16i04.d	bn16i05.d	bn16i06.d	Avg. RT
t-Butyl Alcohol-d10	2.234	2.222	2.222	2.222	2.216	2.222	2.223
Fluorobenzene	4.363	4.357	4.357	4.357	4.351	4.357	4.357
Chlorobenzene-d5	7.545	7.545	7.545	7.545	7.545	7.545	7.545
1,4-Dichlorobenzene-d4	9.528	9.529	9.528	9.528	9.528	9.528	9.528

* indicates the retention time is greater than 30 seconds from the average RT.

Report generated on 11/15/2011 at 05:48.

INITIAL CALIBRATION VERIFICATION

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09953 ICV Date: 11/15/11 Time: 05:28

Lab File ID: bn16m01.d Init. Calib. Date(s): 11/15/11 11/15/11

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: DB-624 ID: .18

COMPOUND	RRF	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT
Chlorotrifluoroethene	0.4148	0.4567	22.02	20	10
Ethyl Ether	0.2083	0.2331	22.38	20	12
Freon 133a	0.6745	0.7330	21.73	20	9
Acetonitrile	1.4760	1.3876	141.01	150	-6
Vinyl Acetate	0.2886	0.1694	58.70	100	-41
Ethyl Acetate	0.2149	0.2134	19.86	20	-1
Isopropyl Acetate	0.4128	0.4088	19.81	20	-1
n-Propyl Acetate	0.0845	0.0830	19.65	20	-2
3,4-Dichloro-1-Butene	0.3934	0.3968	20.17	20	1
Butyl Acetate	0.4349	0.4294	19.75	20	-1
2,3,4-Trichlorobutene	0.5716	0.5973	21.22	20	6

Average %Drift 8

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

DHR13 2897

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09355 Calibration Date(s): 12/23/11 12/23/11

Heated Purge: (Y/N) Y Calibration Times: 14:47 16:30

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: DB-624 ID: .18

LAB FILE ID: RRF 4 = yd23i06.d RRF 10= yd23i05.d RRF 20= yd23i04.d
RRF 50= yd23i03.d RRF100= yd23i02.d RRF300= yd23i01.d RRF =

COMPOUND	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	$\overline{RRF}$	% RSD	CAL. METHOD	
Dichlorodifluoromethane	0.5893	0.5970	0.5576	0.5415	0.5387	0.5340		0.5597	5	AVG	
Chloromethane	#0.5421	0.5399	0.4937	0.4699	0.4749	0.4486		0.4948	8	AVG	#
Vinyl Chloride	*0.4965	0.4849	0.4476	0.4414	0.4297	0.4233		0.4539	7	AVG	*
1,3-Butadiene	0.4056	0.3297	0.3214	0.2967	0.2932	0.2791		0.3209	14	AVG	
Bromomethane	0.2977	0.2951	0.2796	0.2662	0.2587	0.2522		0.2749	7	AVG	
Chloroethane	0.2685	0.2503	0.2302	0.2254	0.2122	0.1955		0.2303	11	AVG	
Dichlorofluoromethane	0.6217	0.6072	0.5831	0.5543	0.5615	0.5310		0.5764	6	AVG	
Trichlorofluoromethane	0.5968	0.5991	0.5584	0.5440	0.5457	0.5523		0.5660	4	AVG	
n-Pentane	0.5970	0.5611	0.5429	0.5348	0.5226	0.4920		0.5417	7	AVG	
Ethyl Ether	0.2793	0.2846	0.2758	0.2718	0.2658	0.2569		0.2723	4	AVG	
Freon 123a	0.3765	0.3646	0.3519	0.3322	0.3388	0.3339		0.3496	5	AVG	
Acrolein	1.6964	2.2060	1.5425	1.6981	1.6232	1.6161		1.7304	14	AVG	
1,1-Dichloroethene	*0.2560	0.2523	0.2435	0.2341	0.2431	0.2424		0.2452	3	AVG	*
Freon 113	0.2765	0.2804	0.2759	0.2671	0.2782	0.2782		0.2760	2	AVG	
Acetone	0.0766	0.0708	0.0632	0.0593	0.0561	0.0512		0.0628	15	AVG	
Methyl Iodide	0.4732	0.4720	0.4650	0.4478	0.4682	0.4609		0.4645	2	AVG	
2-Propanol	0.8939	0.7670	0.6177	0.8080	0.8144	0.7062		0.7679	12	AVG	
Carbon Disulfide	0.7984	0.7778	0.7757	0.7518	0.7792	0.7779		0.7768	2	AVG	
Allyl Chloride	0.4935	0.4867	0.4715	0.4762	0.4685	0.4731		0.4783	2	AVG	
Methyl Acetate	0.5221	0.4744	0.4788	0.4649	0.4544	0.4494		0.4740	6	AVG	
Methylene Chloride	0.2848	0.2913	0.2847	0.2693	0.2811	0.2760		0.2812	3	AVG	
t-Butyl Alcohol	1.0569	1.0839	0.9860	0.9828	0.9776	0.9032		0.9984	6	AVG	
Acrylonitrile	0.2378	0.2421	0.2192	0.2175	0.2117	0.1965		0.2208	8	AVG	
trans-1,2-Dichloroethene	0.2749	0.2757	0.2707	0.2579	0.2676	0.2665		0.2689	2	AVG	
Methyl Tertiary Butyl Ether	0.9198	0.9477	0.9298	0.9054	0.9397	0.9038		0.9244	2	AVG	
n-Hexane	0.4370	0.4300	0.4349	0.4075	0.4335	0.4327		0.4293	3	AVG	
1,2-Dichloroethene (total)	0.2804	0.2852	0.2809	0.2688	0.2792	0.2792		0.2790	2	AVG	
1,1-Dichloroethane	#0.5186	0.5161	0.5115	0.4885	0.5056	0.4952		0.5059	2	AVG	#
di-Isopropyl Ether	0.9964	1.0135	1.0094	0.9531	1.0017	0.9661		0.9900	2	AVG	
2-Chloro-1,3-Butadiene	0.4320	0.4419	0.4389	0.4267	0.4477	0.4505		0.4396	2	AVG	
Ethyl t-Butyl Ether	0.8671	0.8995	0.9132	0.8690	0.9086	0.8768		0.8890	2	AVG	
cis-1,2-Dichloroethene	0.2859	0.2947	0.2910	0.2797	0.2909	0.2919		0.2890	2	AVG	
2-Butanone	0.3249	0.3455	0.3135	0.3181	0.3094	0.2924		0.3173	6	AVG	
2,2-Dichloropropane	0.3633	0.3800	0.3791	0.3733	0.3989	0.3935		0.3814	3	AVG	
Propionitrile	1.2599	1.3239	1.2677	1.2791	1.3556	1.3983		1.3141	4	AVG	
Methacrylonitrile	0.2010	0.2041	0.2025	0.1964	0.2047	0.2022		0.2018	1	AVG	
Bromochloromethane	0.1438	0.1516	0.1516	0.1483	0.1510	0.1505		0.1495	2	AVG	
Tetrahydrofuran	1.0840	1.2335	1.0574	1.1551	1.1649	1.2098		1.1508	6	AVG	
Chloroform	*0.4739	0.4865	0.4820	0.4645	0.4815	0.4777		0.4777	2	AVG	*
1,1,1-Trichloroethane	0.5421	0.4923	0.4824	0.4358	0.4563	0.4600		0.4781	8	AVG	
Cyclohexane	0.5002	0.5127	0.5026	0.4887	0.5110	0.5187		0.5056	2	AVG	
Cyclohexane(mz 84)	0.3935	0.4215	0.4020	0.3966	0.4088	0.4197		0.4070	3	AVG	
Cyclohexane(mz 69)	0.1456	0.1493	0.1465	0.1419	0.1498	0.1541		0.1479	3	AVG	
1,1-Dichloropropene	0.3947	0.3821	0.3771	0.3632	0.3805	0.3877		0.3809	3	AVG	
Carbon Tetrachloride	0.3546	0.3510	0.3602	0.3542	0.3783	0.3905		0.3648	4	AVG	
Isobutyl Alcohol	0.3676	0.3906	0.3432	0.3601	0.3597	0.3802		0.3669	5	AVG	
Benzene	1.1335	1.1367	1.1175	1.0677	1.1141	1.1093		1.1131	2	AVG	
1,2-Dichloroethane	0.4196	0.4270	0.4225	0.4079	0.4246	0.4228		0.4207	2	AVG	
1,2-Dichloroethane(mz 98)	0.0374	0.0349	0.0345	0.0341	0.0361	0.0363		0.0355	4	AVG	
t-Amyl Methyl Ether	0.7990	0.8343	0.8330	0.8077	0.8495	0.8372		0.8268	2	AVG	
n-Heptane	0.5481	0.5104	0.5291	0.4436	0.5008	0.4857		0.5030	7	AVG	
n-Butanol	0.2807	0.2938	0.2964	0.2989	0.3209	0.3262		0.3028	6	AVG	

Minimum RRF for SPCC(#) = 0.10
(0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %RSD for CCC(*) = 30%

DHR13 8898

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09355 Calibration Date(s): 12/23/11 12/23/11

Heated Purge: (Y/N) Y Calibration Times: 14:47 16:30

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: DB-624 ID: .18

LAB FILE ID: RRF 4 = yd23i06.d RRF 10= yd23i05.d RRF 20= yd23i04.d
RRF 50= yd23i03.d RRF100= yd23i02.d RRF300= yd23i01.d RRF =

COMPOUND	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	$\overline{RRF}$	% RSD	CAL. METHOD	
Trichloroethene	0.2877	0.2922	0.2850	0.2745	0.2884	0.2930		0.2868	2	AVG	
1,2-Dichloropropane	*0.2973	0.3004	0.2976	0.2890	0.3038	0.3060		0.2990	2	AVG	*
Methylcyclohexane(mz98)	0.2237	0.2319	0.2285	0.2279	0.2322	0.2381		0.2304	2	AVG	
Methylcyclohexane	0.5137	0.5094	0.5161	0.5094	0.5177	0.5306		0.5162	2	AVG	
Methyl Methacrylate	0.2532	0.2765	0.2863	0.2905	0.3084	0.3141		0.2882	8	AVG	
Dibromomethane	0.1858	0.1878	0.1905	0.1863	0.1960	0.1992		0.1909	3	AVG	
1,4-Dioxane	0.0722	0.0715	0.0914	0.0738	0.0959	0.0813		0.0810	13	AVG	
Bromodichloromethane	0.3082	0.3303	0.3386	0.3473	0.3724	0.3828		0.3466	8	AVG	
2-Nitropropane	0.1423	0.1542	0.1451	0.1566	0.1556	0.1519		0.1509	4	AVG	
2-Chloroethyl Vinyl Ether	0.1998	0.2224	0.2280	0.2294	0.2367	0.2378		0.2257	6	AVG	
cis-1,3-Dichloropropene	0.3876	0.4084	0.4305	0.4364	0.4649	0.4737		0.4336	8	AVG	
4-Methyl-2-Pentanone	0.5609	0.7258	0.6121	0.6196	0.6066	0.5680		0.6155	10	AVG	
Toluene	*0.9860	0.9933	0.9772	0.9462	0.9831	0.9838		0.9783	2	AVG	*
trans-1,3-Dichloropropene	0.4832	0.5315	0.5552	0.5800	0.6306	0.6407		0.5702	11	AVG	
Ethyl Methacrylate	0.5224	0.5863	0.6227	0.6417	0.6834	0.6901		0.6244	10	AVG	
1,1,2-Trichloroethane	0.3561	0.3667	0.3708	0.3631	0.3778	0.3805		0.3691	2	AVG	
Tetrachloroethene	0.4443	0.4426	0.4418	0.4250	0.4494	0.4670		0.4450	3	AVG	
1,3-Dichloropropane	0.6274	0.6457	0.6429	0.6273	0.6634	0.6617		0.6447	2	AVG	
2-Hexanone	0.6087	0.9027	0.6645	0.6796	0.6682	0.6207		0.6908	16	2NDDEG	
Dibromochloromethane	0.3122	0.3582	0.3680	0.3906	0.4279	0.4464		0.3839	13	AVG	
1,2-Dibromoethane	0.3784	0.3984	0.3999	0.4001	0.4237	0.4248		0.4042	4	AVG	
Chlorobenzene	#1.0861	1.1079	1.0840	1.0567	1.1128	1.1124		1.0933	2	AVG	#
1,1,1,2-Tetrachloroethane	0.3488	0.3663	0.3725	0.3724	0.3985	0.4113		0.3783	6	AVG	
Ethylbenzene	*1.8327	1.9137	1.8941	1.8435	1.9339	1.8648		1.8804	2	AVG	*
m+p-Xylene	0.7004	0.7424	0.7445	0.7300	0.7811	0.7876		0.7477	4	AVG	
Xylene (Total)	0.6977	0.7349	0.7455	0.7275	0.7805	0.7932		0.7465	5	AVG	
o-Xylene	0.6922	0.7200	0.7474	0.7226	0.7792	0.8042		0.7443	6	AVG	
Styrene	0.9828	1.1219	1.1725	1.1958	1.2940	1.3271		1.1824	11	AVG	
Bromoform	#0.2201	0.2569	0.2859	0.3106	0.3465	0.3851		0.3009	20	2NDDEG	#
Isopropylbenzene	1.8641	1.9179	1.9598	1.9137	2.0007	1.8690		1.9208	3	AVG	
Cyclohexanone	0.3043	0.3114	0.3870	0.3331	0.4079	0.3665		0.3517	12	AVG	
1,1,2,2-Tetrachloroethane	#1.0227	1.0659	1.0735	1.0256	1.0413	0.9566		1.0309	4	AVG	#
trans-1,4-Dichloro-2-Butene	0.3604	0.3782	0.3951	0.3791	0.3902	0.3618		0.3775	4	AVG	
Bromobenzene	0.7901	0.8212	0.8057	0.7758	0.7837	0.7536		0.7883	3	AVG	
1,2,3-Trichloropropane	0.3311	0.3535	0.3432	0.3294	0.3296	0.3052		0.3320	5	AVG	
n-Propylbenzene	3.8256	3.8453	3.7910	3.6051	3.6121	2.7166		3.5659	12	AVG	
2-Chlorotoluene	0.7565	0.7688	0.7531	0.7256	0.7357	0.6928		0.7387	4	AVG	
1,3,5-Trimethylbenzene	2.6507	2.7449	2.7579	2.6411	2.7180	2.3371		2.6416	6	AVG	
4-Chlorotoluene	0.7738	0.7949	0.7927	0.7621	0.7878	0.7769		0.7814	2	AVG	
tert-Butylbenzene	0.5702	0.5973	0.6054	0.5904	0.6191	0.6280		0.6017	3	AVG	
Pentachloroethane	0.4204	0.4591	0.4836	0.4998	0.5202	0.5400		0.4872	9	AVG	
1,2,4-Trimethylbenzene	2.6681	2.8012	2.8078	2.6812	2.7622	2.2863		2.6678	7	AVG	
sec-Butylbenzene	3.4333	3.4586	3.4715	3.3204	3.3588	2.5664		3.2682	11	AVG	
p-Isopropyltoluene	3.0119	3.1082	3.0995	2.9966	3.0638	2.4356		2.9526	9	AVG	
1,3-Dichlorobenzene	1.5735	1.6123	1.5821	1.5094	1.5418	1.4546		1.5456	4	AVG	
1,4-Dichlorobenzene	1.6558	1.6804	1.6494	1.5761	1.6039	1.5558		1.6202	3	AVG	
1,2,3-Trimethylbenzene	2.7900	2.8721	2.8921	2.8148	2.7744	2.2432		2.7311	9	AVG	
Benzyl Chloride	1.5722	1.8428	2.0122	2.1075	2.2611	1.9914		1.9645	12	AVG	
1,3-Diethylbenzene	1.6944	1.7471	1.7863	1.7575	1.7225	1.5904		1.7164	4	AVG	
1,4-Diethylbenzene	1.8314	1.8794	1.8777	1.8918	1.8953	1.7636		1.8565	3	AVG	
n-Butylbenzene	1.5706	1.5824	1.5456	1.5091	1.5412	1.4466		1.5326	3	AVG	
1,2-Dichlorobenzene	1.5431	1.6201	1.5899	1.5516	1.6250	1.5604		1.5817	2	AVG	

Minimum RRF for SPCC(#) = 0.10
(0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %RSD for CCC(*) = 30%

DHR13 8699

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09355 Calibration Date(s): 12/23/11 12/23/11

Heated Purge: (Y/N) Y Calibration Times: 14:47 16:30

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: DB-624 ID: .18

LAB FILE ID: RRF 4 = yd23i06.d RRF 10= yd23i05.d RRF 20= yd23i04.d
RRF 50= yd23i03.d RRF100= yd23i02.d RRF300= yd23i01.d RRF =

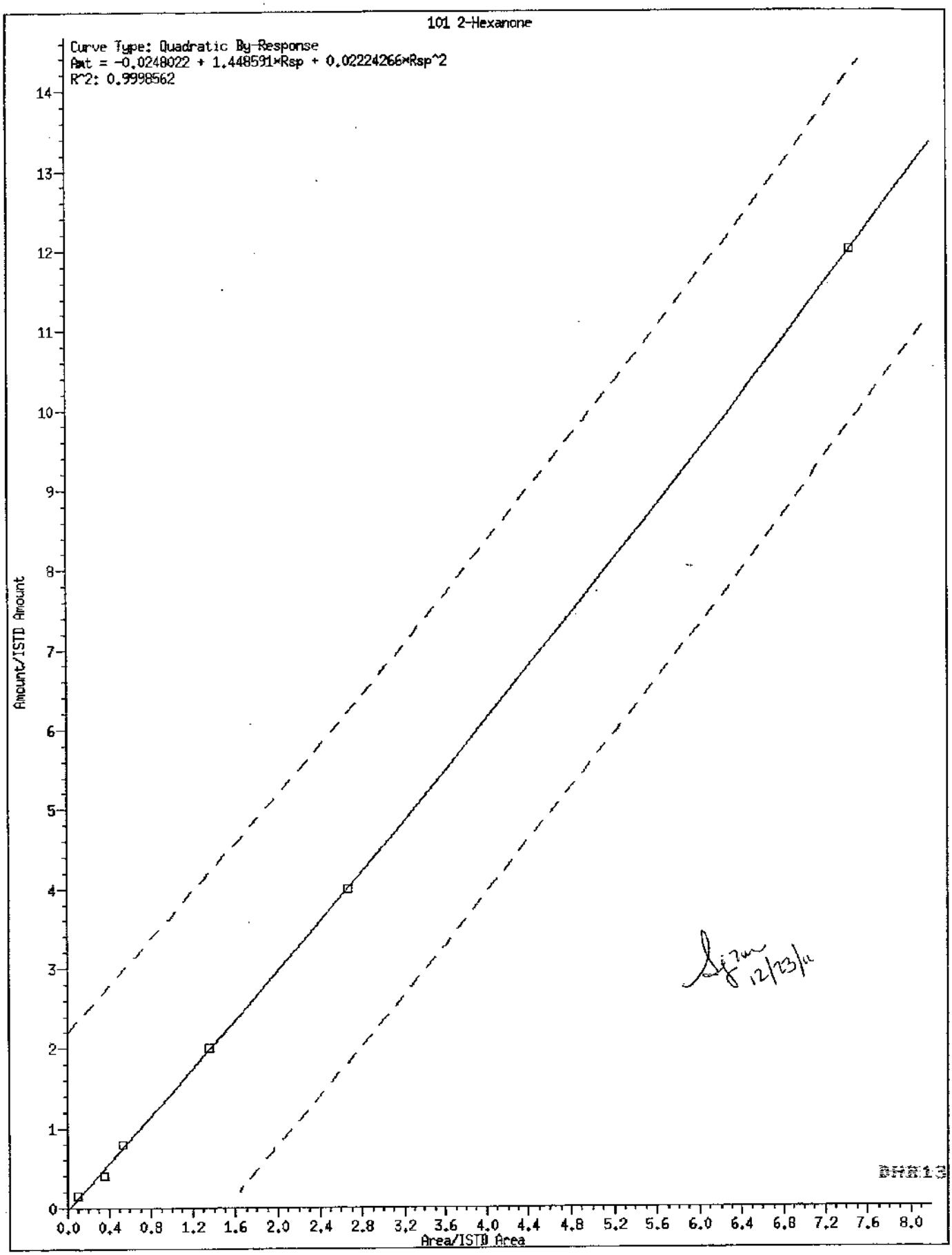
COMPOUND	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	$\overline{RRF}$	% RSD	CAL. METHOD
1,2-Diethylbenzene	1.4872	1.5540	1.5231	1.5276	1.4905	1.4063		1.4981	3	AVG
1,2-Dibromo-3-Chloropropane	0.2533	0.2720	0.2907	0.2871	0.3013	0.2789		0.2806	6	AVG
1,3,5-Trichlorobenzene	1.2705	1.2914	1.2653	1.2226	1.2476	1.2168		1.2524	2	AVG
1,2,4-Trichlorobenzene	1.1806	1.1824	1.1788	1.1479	1.1548	1.1204		1.1608	2	AVG
Hexachlorobutadiene	0.6289	0.5819	0.5952	0.5603	0.5650	0.5637		0.5825	5	AVG
Naphthalene	3.7127	3.9008	4.0726	3.8686	3.9142			3.8938	3	AVG
1,2,3-Trichlorobenzene	1.1755	1.1636	1.1660	1.1192	1.1283	1.0833		1.1393	3	AVG
2-Methylnaphthalene	1.9640	2.0873	2.4286	2.3386	2.3104	1.8786		2.1679	10	AVG
Dibromofluoromethane	0.2416	0.2405	0.2419	0.2397	0.2415	0.2387		0.2406	1	AVG
Dibromofluoromethane(mz111)	0.2455	0.2439	0.2481	0.2471	0.2470	0.2428		0.2457	1	AVG
1,2-Dichloroethane-d4	0.0604	0.0607	0.0611	0.0601	0.0605	0.0580		0.0601	2	AVG
1,2-Dichloroethane-d4(mz104)	0.0382	0.0386	0.0386	0.0386	0.0383	0.0387		0.0385	0	AVG
1,2-Dichloroethane-d4(mz65)	0.3198	0.3222	0.3272	0.3173	0.3213	0.3075		0.3192	2	AVG
Toluene-d8(mz100)	0.8790	0.8804	0.8879	0.8910	0.9081	0.9306		0.8962	2	AVG
4-Bromofluorobenzene(mz174)	0.4463	0.4515	0.4525	0.4481	0.4489	0.4443		0.4486	1	AVG
Toluene-d8	1.3641	1.3627	1.3697	1.3733	1.3734	1.3400		1.3639	1	AVG
4-Bromofluorobenzene	0.5080	0.4982	0.5118	0.5120	0.5066	0.5103		0.5078	1	AVG

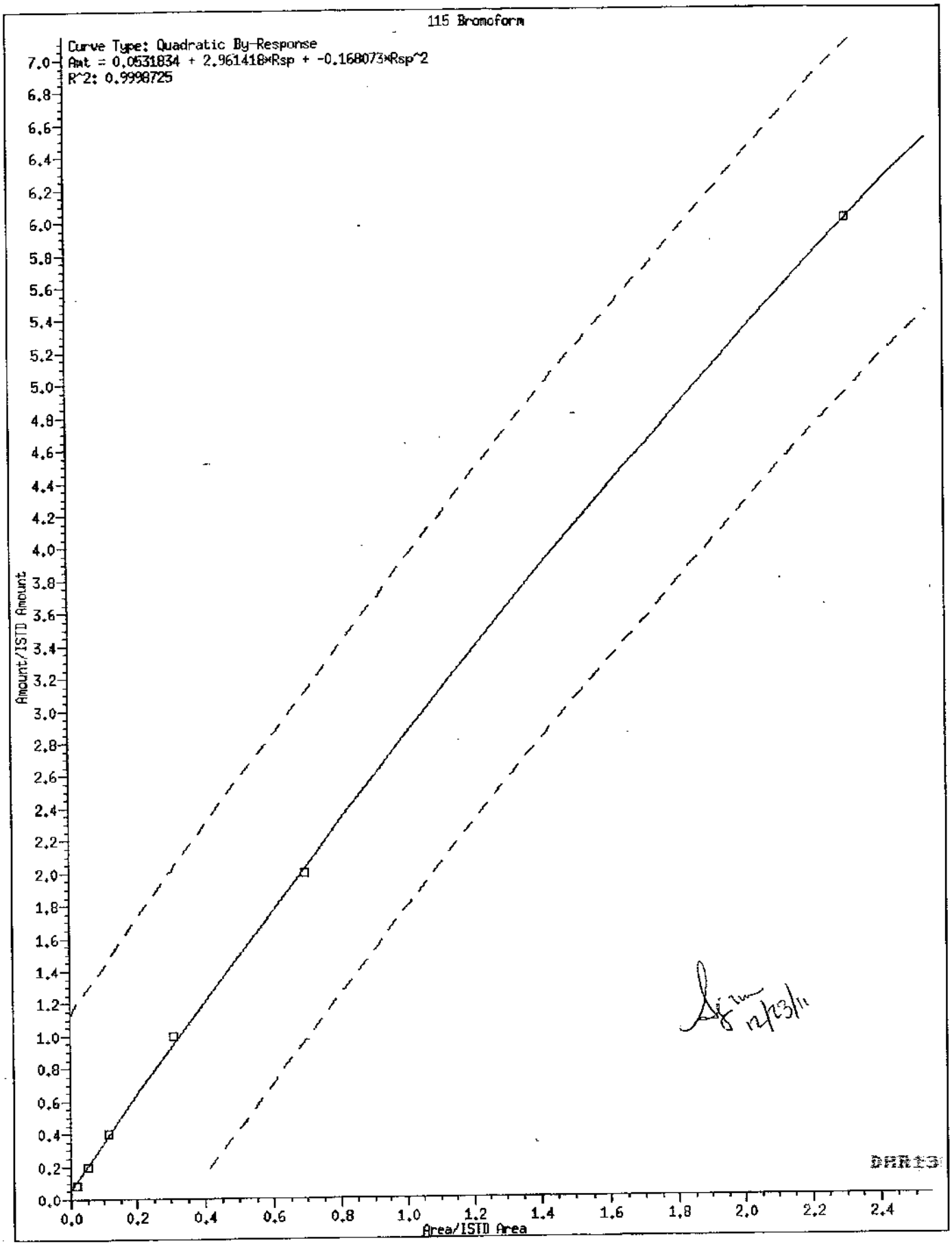
Average %RSD 5

Minimum RRF for SPCC(#) = 0.10
(0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %RSD for CCC(*) = 30%

DHB13 0188

FORM VI VOA


101 2-Hexanone
Curve Type: Quadratic By-Response
Amt = -0.0248022 + 1.448591*Rsp + 0.02224266*Rsp^2
R^2: 0.9998562
Amount/ISTD Amount
Area/ISTD Area
0.0 0.4 0.8 1.2 1.6 2.0 2.4 2.8 3.2 3.6 4.0 4.4 4.8 5.2 5.6 6.0 6.4 6.8 7.2 7.6 8.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
12/23/11



12/23/11

DHR13 0102

Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem2/HP09355.i/11dec23a.b/yd23i01.d VSTD300
/chem2/HP09355.i/11dec23a.b/yd23i02.d VSTD100
/chem2/HP09355.i/11dec23a.b/yd23i03.d VSTD050
/chem2/HP09355.i/11dec23a.b/yd23i04.d VSTD020
/chem2/HP09355.i/11dec23a.b/yd23i05.d VSTD010
/chem2/HP09355.i/11dec23a.b/yd23i06.d VSTD004

Area Summary

File ID:

Internal Standard Name	yd23i01.d	yd23i02.d	yd23i03.d	yd23i04.d	yd23i05.d	yd23i06.d	Avg. Area	%RSD	In Spec
t-Butyl Alcohol-d10	465620	496052	499017	522439	463920	513241	493382	5	Yes
Fluorobenzene	1519809	1484093	1469356	1428414	1406547	1389278	1449583	3	Yes
Chlorobenzene-d5	1113721	1073113	1055694	1027479	1016818	994635	1046910	4	Yes
1,4-Dichlorobenzene-d4	800771	700187	661634	635079	619968	609738	671230	11	Yes

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

File ID:

Internal Standard Name	yd23i01.d	yd23i02.d	yd23i03.d	yd23i04.d	yd23i05.d	yd23i06.d	Avg. RT
t-Butyl Alcohol-d10	2.133	2.127	2.121	2.139	2.133	2.139	2.132
Fluorobenzene	4.262	4.263	4.256	4.262	4.263	4.262	4.261
Chlorobenzene-d5	7.438	7.444	7.444	7.444	7.444	7.444	7.443
1,4-Dichlorobenzene-d4	9.440	9.440	9.440	9.440	9.440	9.440	9.440

* indicates the retention time is greater than 30 seconds from the average RT.

Report generated on 12/23/2011 at 17:30.

ONR13 0183

INITIAL CALIBRATION VERIFICATION

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09355 ICV Date: 12/23/11 Time: 17:12

Lab File ID: yd23cv1.d Init. Calib. Date(s): 12/23/11 12/23/11

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: DB-624 ID: .18

	COMPOUND	RRF	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	Dichlorodifluoromethane	0.5597	0.3414	12.20	20	-39	
#	Chloromethane	0.4948	0.3696	14.94	20	-25	#
*	Vinyl Chloride	0.4539	0.3737	16.47	20	-18	*
	1,3-Butadiene	0.3209	0.3101	19.32	20	-3	
	Bromomethane	0.2749	0.2299	16.72	20	-16	
	Chloroethane	0.2303	0.1812	15.73	20	-21	
	Dichlorofluoromethane	0.5764	0.5506	19.10	20	-4	
	Trichlorofluoromethane	0.5660	0.5265	18.60	20	-7	
	n-Pentane	0.5417	0.5516	20.36	20	2	
	Ethyl Ether	0.2723	0.2788	20.48	20	2	
	Freon 123a	0.3496	0.3420	19.56	20	-2	
	Acrolein	1.7304	1.7180	148.93	150	-1	
*	1,1-Dichloroethene	0.2452	0.2478	20.21	20	1	*
	Freon 113	0.2760	0.2806	20.33	20	2	
	Acetone	0.0628	0.0956	228.09	150	52	
	Methyl Iodide	0.4645	0.4648	20.01	20	0	
	2-Propanol	0.7679	0.8962	175.07	150	17	
	Carbon Disulfide	0.7768	0.7347	18.92	20	-5	
	Allyl Chloride	0.4783	0.4242	17.74	20	-11	
	Methyl Acetate	0.4740	0.5883	24.82	20	24	
	Methylene Chloride	0.2812	0.2856	20.31	20	2	
	t-Butyl Alcohol	0.9984	1.1476	229.89	200	15	
	Acrylonitrile	0.2208	0.2164	98.02	100	-2	
	trans-1,2-Dichloroethene	0.2689	0.2686	19.98	20	0	
	Methyl Tertiary Butyl Ether	0.9244	0.9226	19.96	20	0	
	n-Hexane	0.4293	0.4320	20.13	20	1	
	1,2-Dichloroethene (total)	0.2790	0.2814	40.34	40	1	
#	1,1-Dichloroethane	0.5059	0.5122	20.25	20	1	#
	di-Isopropyl Ether	0.9900	0.9876	19.95	20	0	
	2-Chloro-1,3-Butadiene	0.4396	0.4541	20.66	20	3	
	Ethyl t-Butyl Ether	0.8890	0.8969	20.18	20	1	
	cis-1,2-Dichloroethene	0.2890	0.2942	20.36	20	2	
	2-Butanone	0.3173	0.4089	193.29	150	29	
	2,2-Dichloropropane	0.3814	0.3750	19.66	20	-2	
	Propionitrile	1.3141	1.3574	154.95	150	3	
	Methacrylonitrile	0.2018	0.2075	154.24	150	3	

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

DHR13 0184

FORM VII VOA

INITIAL CALIBRATION VERIFICATION

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09355 ICV Date: 12/23/11 Time: 17:12

Lab File ID: yd23cv1.d Init. Calib. Date(s): 12/23/11 12/23/11

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: DB-624 ID: .18

	COMPOUND	RRF	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	Bromochloromethane	0.1495	0.1478	19.77	20	-1	
	Tetrahydrofuran	1.1508	1.1973	104.04	100	4	
*	Chloroform	0.4777	0.4817	20.17	20	1	*
	1,1,1-Trichloroethane	0.4781	0.4692	19.63	20	-2	
	Cyclohexane	0.5056	0.5161	20.41	20	2	
	1,1-Dichloropropene	0.3809	0.3849	20.21	20	1	
	Carbon Tetrachloride	0.3648	0.3546	19.44	20	-3	
	Isobutyl Alcohol	0.3669	0.3724	507.44	500	1	
	Benzene	1.1131	1.1284	20.28	20	1	
	1,2-Dichloroethane	0.4207	0.4307	20.47	20	2	
	t-Amyl Methyl Ether	0.8268	0.8236	19.92	20	0	
	n-Heptane	0.5030	0.5061	20.12	20	1	
	n-Butanol	0.3028	0.2915	962.78	1000	-4	
	Trichloroethene	0.2868	0.2861	19.95	20	0	
*	1,2-Dichloropropane	0.2990	0.2973	19.89	20	-1	*
	Methylcyclohexane	0.5162	0.5128	19.87	20	-1	
	Methyl Methacrylate	0.2882	0.2881	20.00	20	0	
	Dibromomethane	0.1909	0.1922	20.14	20	1	
	1,4-Dioxane	0.0810	0.0692	427.37	500	-15	
	Bromodichloromethane	0.3466	0.3302	19.05	20	-5	
	2-Nitropropane	0.1509	0.1329	17.60	20	-12	
	2-Chloroethyl Vinyl Ether	0.2257	0.2278	20.18	20	1	
	cis-1,3-Dichloropropene	0.4336	0.4255	19.63	20	-2	
	4-Methyl-2-Pentanone	0.6155	0.6064	98.53	100	-1	
*	Toluene	0.9783	0.9727	19.89	20	-1	*
	trans-1,3-Dichloropropene	0.5702	0.5525	19.38	20	-3	
	Ethyl Methacrylate	0.6244	0.6248	20.01	20	0	
	1,1,2-Trichloroethane	0.3691	0.3724	20.18	20	1	
	Tetrachloroethene	0.4450	0.4445	19.98	20	0	
	1,3-Dichloropropane	0.6447	0.6510	20.19	20	1	
	2-Hexanone	0.6908	0.7075	103.47	100	3	
	Dibromochloromethane	0.3839	0.3679	19.17	20	-4	
	1,2-Dibromoethane	0.4042	0.4057	20.08	20	0	
#	Chlorobenzene	1.0933	1.0966	20.06	20	0	#
	1,1,1,2-Tetrachloroethane	0.3783	0.3646	19.27	20	-4	
*	Ethylbenzene	1.8804	1.8839	20.04	20	0	*

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)

Maximum %Drift for CCC(*)=20%

FORM VII VOA

DHR13-0185

INITIAL CALIBRATION VERIFICATION

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09355 ICV Date: 12/23/11 Time: 17:12

Lab File ID: yd23cv1.d Init. Calib. Date(s): 12/23/11 12/23/11

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: DB-624 ID: .18

	COMPOUND	RRF	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	m+p-Xylene	0.7477	0.7475	39.99	40	0	
	Xylene (Total)	0.7465	0.5389	60.00	60	0	
	o-Xylene	0.7443	0.7447	20.01	20	0	
	Styrene	1.1824	1.1775	19.92	20	0	
#	Bromoform	0.3009	0.2733	18.74	20	-6	#
	Isopropylbenzene	1.9208	1.9502	20.31	20	2	
	Cyclohexanone	0.3517	0.3059	434.82	500	-13	
#	1,1,2,2-Tetrachloroethane	1.0309	1.0732	20.82	20	4	#
	trans-1,4-Dichloro-2-Butene	0.3775	0.4026	106.64	100	7	
	Bromobenzene	0.7883	0.8269	20.98	20	5	
	1,2,3-Trichloropropane	0.3320	0.3482	20.98	20	5	
	n-Propylbenzene	3.5659	3.8315	21.49	20	7	
	2-Chlorotoluene	0.7387	0.7716	20.89	20	4	
	1,3,5-Trimethylbenzene	2.6416	2.7643	20.93	20	5	
	4-Chlorotoluene	0.7814	0.7951	20.35	20	2	
	tert-Butylbenzene	0.6017	0.6169	20.50	20	3	
	Pentachloroethane	0.4872	0.4901	20.12	20	1	
	1,2,4-Trimethylbenzene	2.6678	2.8669	21.49	20	7	
	sec-Butylbenzene	3.2682	3.4986	21.41	20	7	
	p-Isopropyltoluene	2.9526	3.1389	21.26	20	6	
	1,3-Dichlorobenzene	1.5456	1.5895	20.57	20	3	
	1,4-Dichlorobenzene	1.6202	1.6761	20.69	20	3	
	1,2,3-Trimethylbenzene	2.7311	2.9842	21.85	20	9	
	Benzyl Chloride	1.9645	1.9738	20.09	20	0	
	1,3-Diethylbenzene	1.7164	1.8651	21.73	20	9	
	1,4-Diethylbenzene	1.8565	1.9324	20.82	20	4	
	n-Butylbenzene	1.5326	1.5585	20.34	20	2	
	1,2-Dichlorobenzene	1.5817	1.6077	20.33	20	2	
	1,2-Diethylbenzene	1.4981	1.5755	21.03	20	5	
	1,2-Dibromo-3-Chloropropane	0.2806	0.2752	19.62	20	-2	
	1,3,5-Trichlorobenzene	1.2524	1.2730	20.33	20	2	
	1,2,4-Trichlorobenzene	1.1608	1.1514	19.84	20	-1	
	Hexachlorobutadiene	0.5825	0.5582	19.17	20	-4	
	Naphthalene	3.8938	3.9361	20.22	20	1	
	1,2,3-Trichlorobenzene	1.1393	1.1397	20.01	20	0	
	2-Methylnaphthalene	2.1679	2.1145	19.51	20	-2	

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)

Maximum %Drift for CCC(*)=20%

DHR13 8185

FORM VII VOA

INITIAL CALIBRATION VERIFICATION

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09355 ICV Date: 12/23/11 Time: 17:12

Lab File ID: yd23cv1.d Init. Calib. Date(s): 12/23/11 12/23/11

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: DB-624 ID: .18

COMPOUND	RRF	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT

Average %Drift 5

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)

Maximum %Drift for CCC(*)=20%

DHR13 #107

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09355 Calibration Date(s): 11/14/11 11/14/11

Heated Purge: (Y/N) Y Calibration Times: 09:41 12:04

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: DB-624 ID: .18

LAB FILE ID: RRF 4 = yn14i06.d RRF 10= yn14i05.d RRF 20= yn14i04.d
RRF 50= yn14i03.d RRF100= yn14i02.d RRF300= yn14i01.d RRF =

COMPOUND	RRF 4	RRF 10	RRF 20	RRF 50	RRF100	RRF300	RRF	$\overline{RRF}$	% RSD	CAL. METHOD
Chlorotrifluoroethene	0.6510	0.6550	0.5983	0.5933	0.5597	0.6029		0.6101	6	AVG
Freon 133a	1.0672	1.0567	0.9921	1.0459	1.0062	1.0241		1.0320	3	AVG
Ethanol	0.1228	0.1231	0.1256	0.1417	0.1286	0.1067		0.1248	9	AVG
Acetonitrile	1.1348	1.1102	1.1081	1.2034	1.1594	1.1122		1.1380	3	AVG
Vinyl Acetate	0.4923	0.4859	0.4671	0.5114	0.5047			0.4923	4	AVG
Isopropyl Acetate	0.7424	0.7807	0.8003	0.8557	0.8446			0.8047	6	AVG
Diethoxymethane	0.3987	0.4229	0.4409	0.5038	0.4954	0.5546		0.4694	12	AVG
Epichlorohydrin	0.0477	0.0483	0.0523	0.0623	0.0597	0.0626		0.0555	12	AVG
Ethyl Acetate	0.5020	0.5057	0.4882	0.5166	0.4984			0.5022	2	AVG
3,4-Dichloro-1-butene	0.2703	0.3200	0.3414	0.4275	0.4464			0.3611	21	1STDEG
n-Propyl Acetate	0.1594	0.1680	0.1764	0.1923	0.1897			0.1772	8	AVG
Butyl Acetate	0.8107	0.8585	0.8960	0.9728	0.9515			0.8979	7	AVG
cis-1,4-Dichloro-2-Butene	0.1269	0.1625	0.1873	0.2516	0.2709			0.1998	30	1STDEG
2,3,4-Trichlorobutene	0.4483	0.5346	0.5828	0.7212	0.7715	0.8726		0.6552	24	2NDDEG

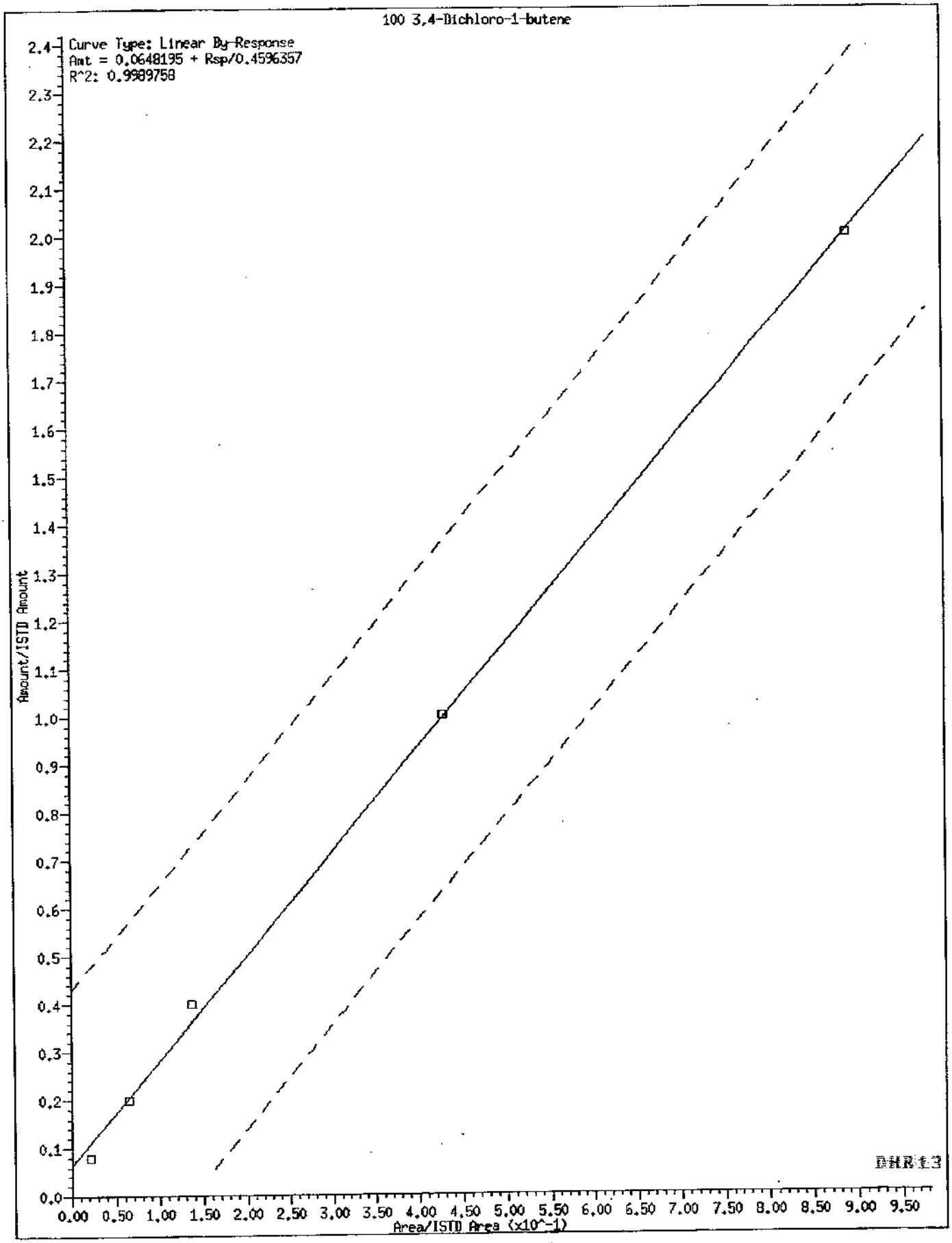
Average %RSD 11

Minimum RRF for SPCC(#) = 0.10
(0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %RSD for CCC(*) = 30%

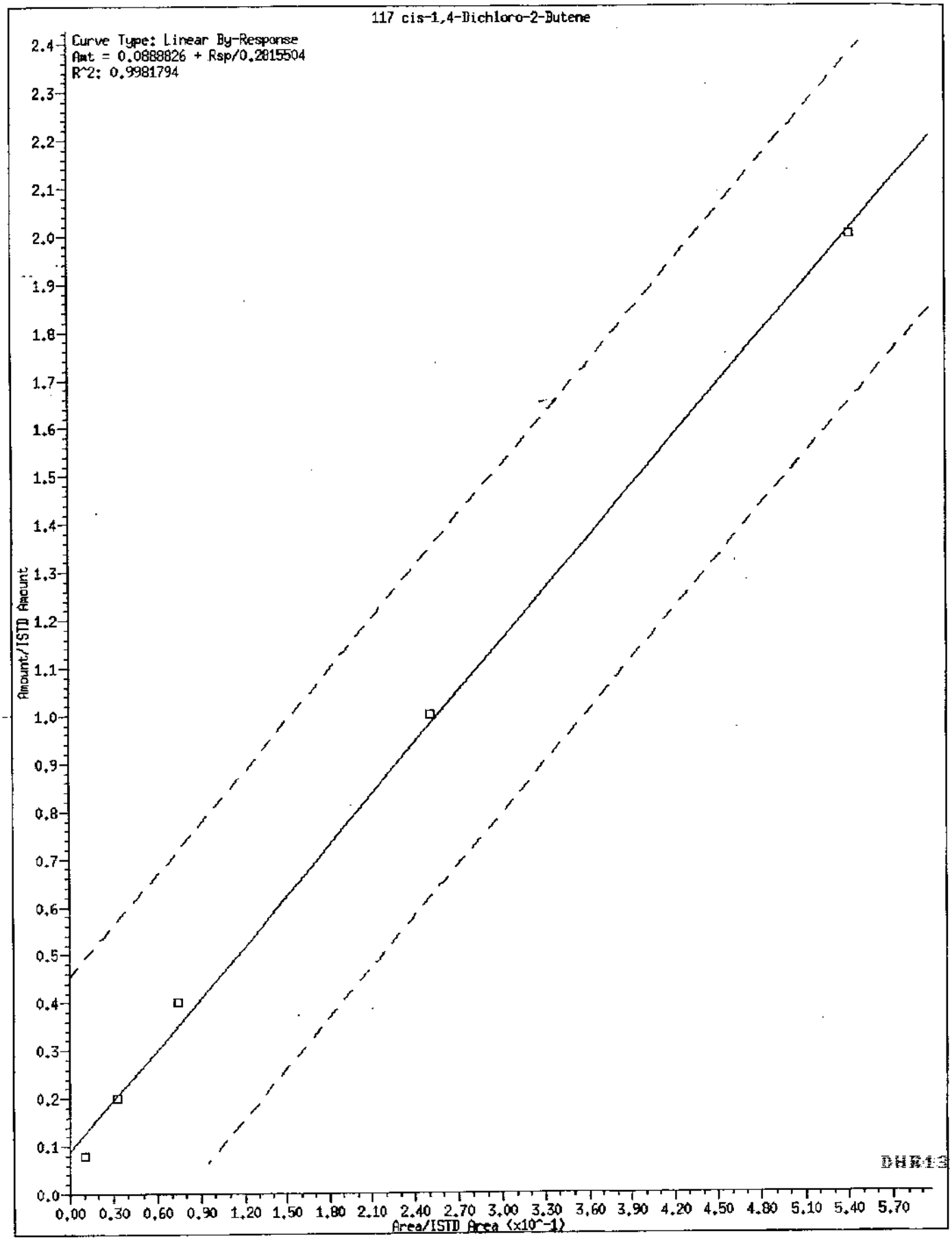
DNR13 01189

FORM VI VOA

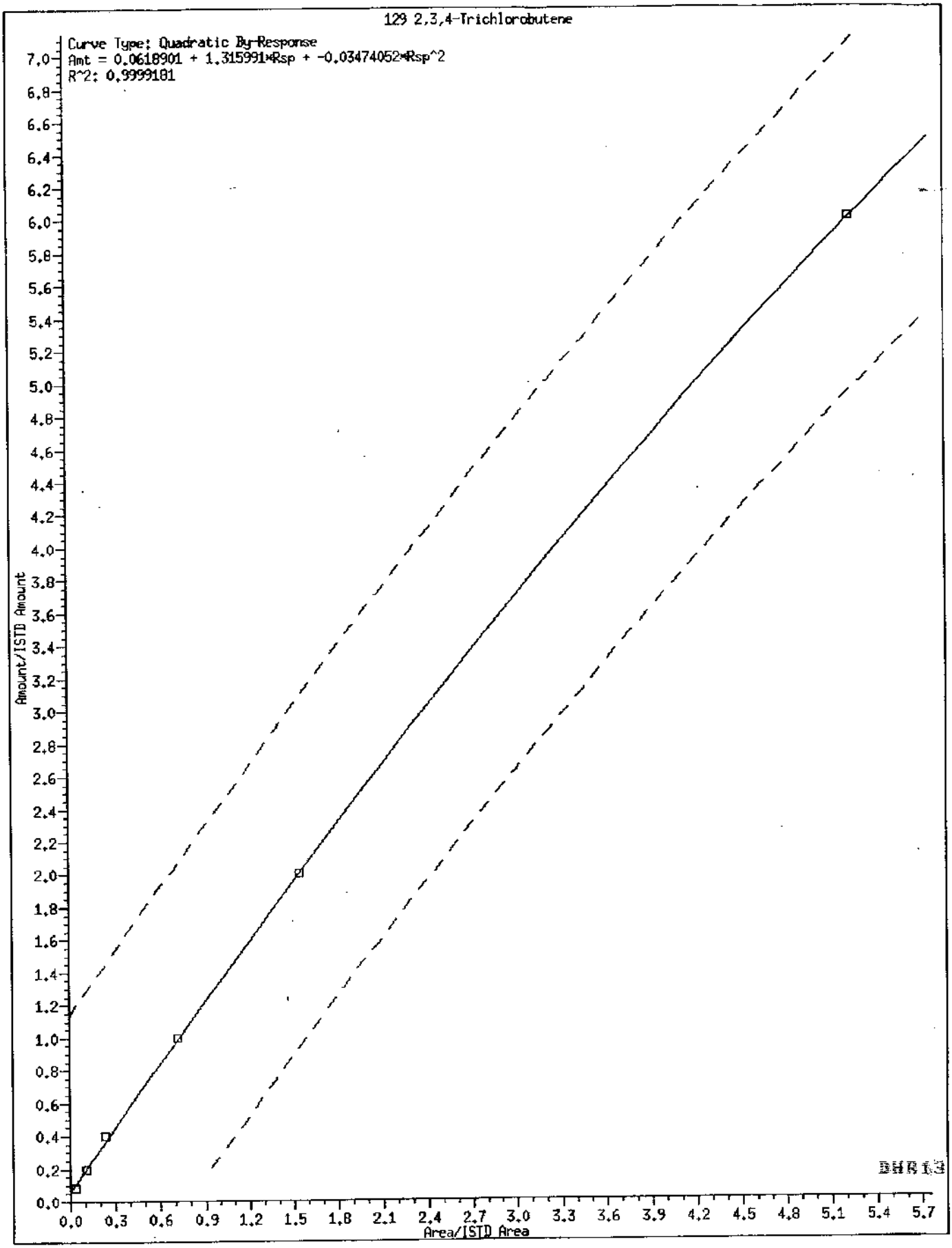
DRR 1126
11/14/11



DHR13 0189


117 cis-1,4-Dichloro-2-Butene
Curve Type: Linear By-Response
Amt = 0.0888826 + Rsp/0.2815504
R^2: 0.9981794
Amount/ISTD Amount
Area/ISTD Area (x10^-1)

DMC 126
11/14/11



DHR13 0111

Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem2/HP09355.i/11nov14a.b/yn14i01.d VSTD300
/chem2/HP09355.i/11nov14a.b/yn14i02.d VSTD100
/chem2/HP09355.i/11nov14a.b/yn14i03.d VSTD050
/chem2/HP09355.i/11nov14a.b/yn14i04.d VSTD020
/chem2/HP09355.i/11nov14a.b/yn14i05.d VSTD010
/chem2/HP09355.i/11nov14a.b/yn14i06.d VSTD004

Area Summary

File ID:

Internal Standard Name	yn14i01.d	yn14i02.d	yn14i03.d	yn14i04.d	yn14i05.d	yn14i06.d	Avg. Area	%RSD	In Spec
t-Butyl Alcohol-d10	444417	410629	414686	415889	398359	407807	415298	4	Yes
Fluorobenzene	1146413	1128572	1069827	1059118	1048818	1050427	1083862	4	Yes
Chlorobenzene-d5	865119	852422	803412	800923	797125	792619	818603	4	Yes
1,4-Dichlorobenzene-d4	537171	529994	499953	502454	497074	495074	510287	4	Yes

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

File ID:

Internal Standard Name	yn14i01.d	yn14i02.d	yn14i03.d	yn14i04.d	yn14i05.d	yn14i06.d	Avg. RT
t-Butyl Alcohol-d10	2.133	2.145	2.127	2.139	2.139	2.127	2.135
Fluorobenzene	4.263	4.269	4.263	4.269	4.268	4.269	4.267
Chlorobenzene-d5	7.444	7.444	7.444	7.444	7.444	7.444	7.444
1,4-Dichlorobenzene-d4	9.434	9.440	9.440	9.440	9.439	9.434	9.438

* indicates the retention time is greater than 30 seconds from the average RT.

Report generated on 11/14/2011 at 14:48.

INITIAL CALIBRATION VERIFICATION

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09355 ICV Date: 11/14/11 Time: 14:02

Lab File ID: yn14v02.d Init. Calib. Date(s): 11/14/11 11/14/11

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: DB-624 ID: .18

COMPOUND	$\overline{RRF}$	RRF	ACTUAL CONC.	TRUE CONC.	% DRIFT
Chlorotrifluoroethene	0.6101	0.5313	17.42	20	-13
Freon 133a	1.0320	0.9346	18.11	20	-9
Ethanol	0.1248	0.1267	507.96	500	2
Acetonitrile	1.1380	1.1558	152.35	150	2
Vinyl Acetate	0.4923	0.3365	68.35	100	-32
Isopropyl Acetate	0.8047	0.7642	18.99	20	-5
Diethoxymethane	0.4694	0.4104	17.49	20	-13
Epichlorohydrin	0.0555	0.0547	39.40	40	-1
Ethyl Acetate	0.5022	0.4661	18.56	20	-7
3,4-Dichloro-1-butene	0.3611	0.3467	18.33	20	-8
n-Propyl Acetate	0.1772	0.1692	19.10	20	-4
Butyl Acetate	0.8979	0.8627	19.22	20	-4
cis-1,4-Dichloro-2-Butene	0.1998	0.2223	43.91	50	-12
2,3,4-Trichlorobutene	0.6552	0.6097	19.04	20	-5

Average %Drift 9

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

BHR13: 2113

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09953 Calibration Date: 01/24/12 Time: 10:33

Lab File ID: bj24c01.d Init. Calib. Date(s): 11/15/11 11/15/11

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: DB-624 ID: .18

	COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	Dichlorodifluoromethane	0.3740	0.4052	54.17	50	8	
#	Chloromethane	0.4065	0.3580	44.04	50	-12	#
*	Vinyl Chloride	0.3704	0.3258	43.99	50	-12	*
	Bromomethane	0.2550	0.2228	43.69	50	-13	
	Chloroethane	0.1952	0.1707	43.72	50	-13	
	Trichlorofluoromethane	0.4370	0.4278	48.95	50	-2	
	Ethanol	0.1327	0.1249	2352.81	2500	-6	
	Acrolein	2.3995	1.9738	411.30	500	-18	
*	1,1-Dichloroethene	0.2442	0.2137	43.76	50	-12	*
	Freon 113	0.2649	0.2539	47.92	50	-4	
	Acetone	0.0719	0.0627	99.89	100	0	
	Methyl Iodide	0.4802	0.4385	45.65	50	-9	
	2-Propanol	0.9379	0.8568	228.38	250	-9	
	Carbon Disulfide	0.8134	0.7005	43.06	50	-14	
	Allyl Chloride	0.3541	0.2556	36.09	50	-28	
	Methyl Acetate	0.1480	0.1157	39.08	50	-22	
	Methylene Chloride	0.2773	0.2311	41.68	50	-17	
	t-Butyl Alcohol	1.2808	1.2494	243.88	250	-2	
	Acrylonitrile	4.6596	4.4651	47.91	50	-4	
	trans-1,2-Dichloroethene	0.2700	0.2426	44.93	50	-10	
	Methyl Tertiary Butyl Ether	0.6906	0.6297	45.60	50	-9	
	n-Hexane	0.3932	0.3587	45.60	50	-9	
#	1,1-Dichloroethane	0.4815	0.4660	48.39	50	-3	#
	2-Chloro-1,3-Butadiene	0.3899	0.4035	51.75	50	3	
	di-Isopropyl Ether	0.8530	0.8167	47.87	50	-4	
	Ethyl t-Butyl Ether	0.7983	0.6918	43.33	50	-13	
	cis-1,2-Dichloroethene	0.2885	0.2584	44.79	50	-10	
	1,2-Dichloroethene (total)	0.2792	0.2505	89.72	100	-10	
	2,2-Dichloropropane	0.3736	0.3745	50.12	50	0	
	2-Butanone	0.1060	0.1006	94.85	100	-5	
	Propionitrile	1.7092	1.6101	235.51	250	-6	
	Methacrylonitrile	5.0378	4.4959	111.56	125	-11	
	Bromochloromethane	0.1346	0.1140	42.35	50	-15	
	Tetrahydrofuran	1.4817	1.3116	88.52	100	-11	
*	Chloroform	0.4530	0.4435	48.94	50	-2	*
	1,1,1-Trichloroethane	0.4357	0.4222	48.45	50	-3	

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

DHR13 9114

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09953 Calibration Date: 01/24/12 Time: 10:33

Lab File ID: bj24c01.d Init. Calib. Date(s): 11/15/11 11/15/11

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: DB-624 ID: .18

	COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	Cyclohexane	0.4814	0.4541	47.16	50	-6	
	Cyclohexane(mz69)	0.1469	0.1347	45.83	50	-8	
	Cyclohexane(mz84)	0.4095	0.3731	45.56	50	-9	
	1,1-Dichloropropene	0.3660	0.3507	47.92	50	-4	
	Carbon Tetrachloride	0.3310	0.3588	54.20	50	8	
	Benzene	1.0807	0.9735	45.04	50	-10	
	Isobutyl Alcohol	0.4121	0.4070	617.28	625	-1	
	1,2-Dichloroethane	0.3060	0.3291	53.78	50	8	
	1,2-Dichloroethane(mz98)	0.0293	0.0264	45.02	50	-10	
	t-Amyl Methyl Ether	0.6947	0.5901	42.47	50	-15	
	n-Heptane	0.3890	0.3802	48.87	50	-2	
	n-Butanol	0.3572	0.3015	1054.97	1250	-16	
	Trichloroethene	0.2804	0.2574	45.90	50	-8	
	Methylcyclohexane	0.4989	0.3936	39.45	50	-21	
	Methylcyclohexane(mz98)	0.2274	0.1796	39.49	50	-21	
*	1,2-Dichloropropane	0.2825	0.2620	46.37	50	-7	*
	Dibromomethane	0.1563	0.1459	46.68	50	-7	
	1,4-Dioxane	0.1427	0.1275	558.47	625	-11	
	Methyl Methacrylate	0.1643	0.1396	42.47	50	-15	
	Bromodichloromethane	0.3167	0.3141	49.58	50	-1	
	2-Nitropropane	3.7810	2.6420	73.77	100	-26	
	2-Chloroethyl Vinyl Ether	0.0593	0.1148	82.87	50	66	
	cis-1,3-Dichloropropene	0.3952	0.3764	47.62	50	-5	
	4-Methyl-2-Pentanone	0.2211	0.2177	98.43	100	-2	
*	Toluene	0.9785	0.8368	42.76	50	-14	*
	trans-1,3-Dichloropropene	0.4855	0.4630	47.68	50	-5	
	Ethyl Methacrylate	0.4287	0.3698	43.13	50	-14	
	1,1,2-Trichloroethane	0.3003	0.2649	44.11	50	-12	
	Tetrachloroethene	0.4425	0.4050	45.77	50	-8	
	1,3-Dichloropropane	0.5299	0.4746	44.77	50	-10	
	2-Hexanone	0.1221	0.1028	84.15	100	-16	
	Dibromochloromethane	0.3373	0.3274	48.53	50	-3	
	1,2-Dibromoethane	0.3096	0.2752	44.45	50	-11	
#	Chlorobenzene	1.1037	0.9689	43.89	50	-12	#
	1,1,1,2-Tetrachloroethane	0.3711	0.3500	47.15	50	-6	
*	Ethylbenzene	1.8650	1.6997	45.57	50	-9	*

DHP13: 6215

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09953 Calibration Date: 01/24/12 Time: 10:33

Lab File ID: bj24c01.d Init. Calib. Date(s): 11/15/11 11/15/11

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: DB-624 ID: .18

	COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	m+p-Xylene	0.7317	0.6653	90.93	100	-9	
	Xylene (Total)	0.7334	0.6639	135.79	150	-9	
	o-Xylene	0.7368	0.6611	44.86	50	-10	
	Styrene	1.1811	1.0346	43.80	50	-12	
#	Bromoform	0.2136	0.2133	49.93	50	0	#
	Isopropylbenzene	1.8810	1.7632	46.87	50	-6	
	Cyclohexanone	0.4552	0.4394	603.31	625	-3	
	Bromobenzene	0.8223	0.6519	39.64	50	-21	
#	1,1,2,2-Tetrachloroethane	0.7589	0.5817	38.32	50	-23	#
	1,2,3-Trichloropropane	0.1971	0.1583	40.14	50	-20	
	trans-1,4-Dichloro-2-Butene	0.1942	0.1774	114.20	125	-9	
	n-Propylbenzene	3.9478	3.2520	41.19	50	-18	
	2-Chlorotoluene	0.8378	0.6537	39.02	50	-22	
	1,3,5-Trimethylbenzene	2.8362	2.3151	40.81	50	-18	
	4-Chlorotoluene	0.8632	0.6834	39.59	50	-21	
	tert-Butylbenzene	0.6599	0.5337	40.43	50	-19	
	Pentachloroethane	0.4644	0.4372	47.07	50	-6	
	1,2,4-Trimethylbenzene	2.9137	2.3565	40.44	50	-19	
	sec-Butylbenzene	3.6587	3.0433	41.59	50	-17	
	1,3-Dichlorobenzene	1.6233	1.4340	44.17	50	-12	
	p-Isopropyltoluene	3.2167	2.8561	44.40	50	-11	
	1,4-Dichlorobenzene	1.7310	1.4171	40.93	50	-18	
	1,2,3-Trimethylbenzene	2.8676	2.3902	41.68	50	-17	
	Benzyl Chloride	1.3173	1.1711	44.45	50	-11	
	1,2-Dichlorobenzene	1.6094	1.3423	41.70	50	-17	
	n-Butylbenzene	1.6443	1.3919	42.33	50	-15	
	1,3-Diethylbenzene	1.8232	1.5495	42.49	50	-15	
	1,4-Diethylbenzene	1.9450	1.6540	42.52	50	-15	
	1,2-Diethylbenzene	1.6279	1.3486	41.42	50	-17	
	1,2-Dibromo-3-Chloropropane	0.1370	0.1169	42.65	50	-15	
	1,2,4-Trichlorobenzene	1.2618	1.0522	41.70	50	-17	
	Hexachlorobutadiene	0.6132	0.5572	45.44	50	-9	
	Naphthalene	3.0365	2.3011	37.89	50	-24	
	1,2,3-Trichlorobenzene	1.2206	1.0040	41.13	50	-18	
	2-Methylnaphthalene	2.1429	1.4385	29.96	50	-40	
	Dibromofluoromethane	0.2374	0.2420	50.97	50	2	

DHR13 2116

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09953 Calibration Date: 01/24/12 Time: 10:33

Lab File ID: bj24c01.d Init. Calib. Date(s): 11/15/11 11/15/11

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: DB-624 ID: .18

COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT
Dibromofluoromethane(mz111)	0.2431	0.2460	50.61	50	1
1,2-Dichloroethane-d4	0.0513	0.0501	48.81	50	-2
1,2-Dichloroethane-d4(mz104)	0.0325	0.0317	48.72	50	-3
1,2-Dichloroethane-d4(mz65)	0.2368	0.2714	57.30	50	15
Toluene-d8	1.3865	1.3787	49.72	50	-1
Toluene-d8(mz100)	0.9069	0.8932	49.24	50	-2
4-Bromofluorobenzene	0.4981	0.5055	50.74	50	1
4-Bromofluorobenzene(mz174)	0.4069	0.4470	54.93	50	10

Average %Drift 11

DH#13 6117

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

Lancaster Laboratories
Continuing Calibration Internal Standard Check

Initial Calibration Standards:

/chem2/HP09953.i/11nov16a.b/bn15i15.d
/chem2/HP09953.i/11nov16a.b/bn15i14.d
/chem2/HP09953.i/11nov16a.b/bn15i13.d
/chem2/HP09953.i/11nov16a.b/bn15i12.d
/chem2/HP09953.i/11nov16a.b/bn15i11a.d
/chem2/HP09953.i/11nov16a.b/bn15i10a.d

File /chem2/HP09953.i/11nov16a.b/bn15i12.d is Mid Level Calibration Standard used for comparison.

Current Continuing Calibration Standard:

/chem2/HP09953.i/12jan24a.b/bj24c01.d

RT Summary

Internal Standard Name	File ID: bj24c01.d	ICAL RT	In Spec
t-Butyl Alcohol-d10	2.222	2.222	Yes
Fluorobenzene	4.351	4.357	Yes
Chlorobenzene-d5	7.545	7.545	Yes
1,4-Dichlorobenzene-d4	9.522	9.528	Yes

A "No" indicates the retention time is greater than 30 seconds from the referenced ICAL standard.

Area Summary

Internal Standard Name	File ID: bj24c01.d	ICAL Area	Low Limit	High Limit	In Spec
t-Butyl Alcohol-d10	120813	105924	52962	211848	Yes
Fluorobenzene	1303325	1124834	562417	2249668	Yes
Chlorobenzene-d5	928918	772917	386458	1545834	Yes
1,4-Dichlorobenzene-d4	612761	431283	215642	862566	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

DNR13 0118

Comments: _____

report generated on 01/24/2012 at 11:04

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09953 Calibration Date: 01/24/12 Time: 11:02

Lab File ID: bj24c02.d Init. Calib. Date(s): 11/15/11 11/15/11

Matrix: (soil/water) SOIL Level: (low/med) LOW GC Column: DB-624 ID: .18

COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT
Vinyl Acetate	0.2886	0.3540	61.32	50	23

Average %Drift 23

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

FORM VII VOA

DHR13 0128

Lancaster Laboratories
Continuing Calibration Internal Standard Check

Initial Calibration Standards:

/chem2/HP09953.i/11nov16a.b/bn16i06.d
/chem2/HP09953.i/11nov16a.b/bn16i05.d
/chem2/HP09953.i/11nov16a.b/bn16i04.d
/chem2/HP09953.i/11nov16a.b/bn16i03.d
/chem2/HP09953.i/11nov16a.b/bn16i02.d
/chem2/HP09953.i/11nov16a.b/bn16i01.d

File /chem2/HP09953.i/11nov16a.b/bn16i03.d is Mid Level Calibration Standard used for comparison.

Current Continuing Calibration Standard:

/chem2/HP09953.i/12jan24a.b/bj24c02.d

RT Summary

File ID:

Internal Standard Name	bj24c02.d	ICAL RT	In Spec
t-Butyl Alcohol-d10	2.222	2.222	Yes
Fluorobenzene	4.357	4.357	Yes
Chlorobenzene-d5	7.545	7.545	Yes
1,4-Dichlorobenzene-d4	9.528	9.528	Yes

A "No" indicates the retention time is greater than 30 seconds from the referenced ICAL standard.

Area Summary

File ID:

Internal Standard Name	bj24c02.d	ICAL Area	Low Limit	High Limit	In Spec
t-Butyl Alcohol-d10	121811	91752	45876	183504	Yes
Fluorobenzene	1234215	1048912	524456	2097824	Yes
Chlorobenzene-d5	871697	715211	357606	1430422	Yes
1,4-Dichlorobenzene-d4	496718	381802	190901	763604	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

DH813 8121

Comments: _____

report generated on 01/24/2012 at 11:25

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09355 Calibration Date: 01/30/12 Time: 17:21

Lab File ID: yj30c03.d Init. Calib. Date(s): 12/23/11 12/23/11

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: DB-624 ID: .18

	COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	Dichlorodifluoromethane	0.5597	0.6612	59.07	50	18	
#	Chloromethane	0.4948	0.5659	57.18	50	14	#
*	Vinyl Chloride	0.4539	0.4858	53.52	50	7	*
	Bromomethane	0.2749	0.2896	52.68	50	5	
	Chloroethane	0.2303	0.2449	53.16	50	6	
	Trichlorofluoromethane	0.5660	0.6543	57.80	50	16	
	Ethyl Ether	0.2723	0.2759	50.65	50	1	
	Acrolein	1.7304	1.5074	435.58	500	-13	
*	1,1-Dichloroethene	0.2452	0.2676	54.55	50	9	*
	Freon 113	0.2760	0.3204	58.03	50	16	
	Acetone	0.0628	0.0761	121.01	100	21	
	Methyl Iodide	0.4645	0.5025	54.09	50	8	
	2-Propanol	0.7679	0.6911	224.99	250	-10	
	Carbon Disulfide	0.7768	0.8676	55.84	50	12	
	Allyl Chloride	0.4783	0.4774	49.91	50	0	
	Methyl Acetate	0.4740	0.5008	52.83	50	6	
	Methylene Chloride	0.2812	0.2949	52.43	50	5	
	t-Butyl Alcohol	0.9984	1.4220	356.07	250	42	
	Acrylonitrile	0.2208	0.2816	63.78	50	28	
	trans-1,2-Dichloroethene	0.2689	0.2948	54.82	50	10	
	Methyl Tertiary Butyl Ether	0.9244	1.0406	56.29	50	13	
	n-Hexane	0.4293	0.4985	58.06	50	16	
	1,2-Dichloroethene (total)	0.2790	0.3071	110.08	100	10	
#	1,1-Dichloroethane	0.5059	0.5702	56.36	50	13	#
	di-Isopropyl Ether	0.9900	1.0756	54.32	50	9	
	2-Chloro-1,3-Butadiene	0.4396	0.5004	56.92	50	14	
	Ethyl t-Butyl Ether	0.8890	0.9735	54.75	50	10	
	cis-1,2-Dichloroethene	0.2890	0.3195	55.27	50	11	
	2-Butanone	0.3173	0.4027	126.93	100	27	
	2,2-Dichloropropane	0.3814	0.4607	60.41	50	21	
	Propionitrile	1.3141	1.4224	270.60	250	8	
	Methacrylonitrile	0.2018	0.2293	142.01	125	14	
	Bromochloromethane	0.1495	0.1634	54.67	50	9	
	Tetrahydrofuran	1.1508	1.3169	114.43	100	14	
*	Chloroform	0.4777	0.5528	57.86	50	16	*
	1,1,1-Trichloroethane	0.4781	0.5146	53.82	50	8	

BHR13 0123

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09355 Calibration Date: 01/30/12 Time: 17:21

Lab File ID: yj30c03.d Init. Calib. Date(s): 12/23/11 12/23/11

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: DB-624 ID: .18

	COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	Cyclohexane	0.5056	0.5799	57.34	50	15	
	Cyclohexane(mz 84)	0.4070	0.4684	57.53	50	15	
	Cyclohexane(mz 69)	0.1479	0.1699	57.44	50	15	
	1,1-Dichloropropene	0.3809	0.4303	56.48	50	13	
	Carbon Tetrachloride	0.3648	0.4624	63.37	50	27	
	Isobutyl Alcohol	0.3669	0.4037	687.70	625	10	
	Benzene	1.1131	1.2223	54.90	50	10	
	1,2-Dichloroethane	0.4207	0.4966	59.01	50	18	
	1,2-Dichloroethane(mz 98)	0.0355	0.0381	53.60	50	7	
	t-Amyl Methyl Ether	0.8268	0.9183	55.54	50	11	
	n-Heptane	0.5030	0.5423	53.91	50	8	
	n-Butanol	0.3028	0.3094	1277.16	1250	2	
	Trichloroethene	0.2868	0.3179	55.42	50	11	
*	1,2-Dichloropropane	0.2990	0.3295	55.09	50	10	*
	Methylcyclohexane(mz98)	0.2304	0.2582	56.04	50	12	
	Methylcyclohexane	0.5162	0.5859	56.76	50	14	
	Methyl Methacrylate	0.2882	0.3238	56.19	50	12	
	Dibromomethane	0.1909	0.2190	57.35	50	15	
	1,4-Dioxane	0.0810	0.0842	649.48	625	4	
	Bromodichloromethane	0.3466	0.4160	60.01	50	20	
	2-Nitropropane	0.1509	0.2065	136.77	100	37	
	2-Chloroethyl Vinyl Ether	0.2257	0.2609	57.80	50	16	
	cis-1,3-Dichloropropene	0.4336	0.4996	57.61	50	15	
	4-Methyl-2-Pentanone	0.6155	0.7361	119.59	100	20	
*	Toluene	0.9783	1.0611	54.23	50	8	*
	trans-1,3-Dichloropropene	0.5702	0.6697	58.72	50	17	
	Ethyl Methacrylate	0.6244	0.6918	55.40	50	11	
	1,1,2-Trichloroethane	0.3691	0.4112	55.70	50	11	
	Tetrachloroethene	0.4450	0.4952	55.64	50	11	
	1,3-Dichloropropane	0.6447	0.7171	55.61	50	11	
	2-Hexanone	0.6908	0.8096	118.95	100	19	
	Dibromochloromethane	0.3839	0.4598	59.89	50	20	
	1,2-Dibromoethane	0.4042	0.4537	56.12	50	12	
#	Chlorobenzene	1.0933	1.2017	54.95	50	10	#
	1,1,1,2-Tetrachloroethane	0.3783	0.4384	57.94	50	16	
*	Ethylbenzene	1.8804	2.1265	56.54	50	13	*

DHR13 0124

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

7A

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09355 Calibration Date: 01/30/12 Time: 17:21

Lab File ID: yj30c03.d Init. Calib. Date(s): 12/23/11 12/23/11

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: DB-624 ID: .18

	COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT	
	m+p-Xylene	0.7477	0.8291	110.88	100	11	
	Xylene (Total)	0.7465	0.8242	165.61	150	10	
	o-Xylene	0.7443	0.8146	54.72	50	9	
	Styrene	1.1824	1.3322	56.34	50	13	
#	Bromoform	0.3009	0.3729	56.71	50	13	#
	Isopropylbenzene	1.9208	2.1944	57.12	50	14	
	Cyclohexanone	0.3517	0.3061	544.03	625	-13	
#	1,1,2,2-Tetrachloroethane	1.0309	1.1559	56.06	50	12	#
	trans-1,4-Dichloro-2-Butene	0.3775	0.4459	147.65	125	18	
	Bromobenzene	0.7883	0.8736	55.41	50	11	
	1,2,3-Trichloropropane	0.3320	0.3858	58.11	50	16	
	n-Propylbenzene	3.5659	4.1005	57.49	50	15	
	2-Chlorotoluene	0.7387	0.8076	54.66	50	9	
	1,3,5-Trimethylbenzene	2.6416	3.0074	56.92	50	14	
	4-Chlorotoluene	0.7814	0.8498	54.38	50	9	
	tert-Butylbenzene	0.6017	0.6633	55.12	50	10	
	Pentachloroethane	0.4872	0.5807	59.60	50	19	
	1,2,4-Trimethylbenzene	2.6678	3.0968	58.04	50	16	
	sec-Butylbenzene	3.2682	3.7842	57.89	50	16	
	p-Isopropyltoluene	2.9526	3.4040	57.64	50	15	
	1,3-Dichlorobenzene	1.5456	1.7259	55.83	50	12	
	1,4-Dichlorobenzene	1.6202	1.7920	55.30	50	11	
	1,2,3-Trimethylbenzene	2.7311	3.1766	58.16	50	16	
	Benzyl Chloride	1.9645	2.4878	63.32	50	27	
	1,3-Diethylbenzene	1.7164	1.9512	56.84	50	14	
	1,4-Diethylbenzene	1.8565	2.0836	56.12	50	12	
	n-Butylbenzene	1.5326	1.6889	55.10	50	10	
	1,2-Dichlorobenzene	1.5817	1.7498	55.31	50	11	
	1,2-Diethylbenzene	1.4981	1.6836	56.19	50	12	
	1,2-Dibromo-3-Chloropropane	0.2806	0.3533	62.96	50	26	
	1,3,5-Trichlorobenzene	1.2524	1.3862	55.34	50	11	
	1,2,4-Trichlorobenzene	1.1608	1.2534	53.99	50	8	
	Hexachlorobutadiene	0.5825	0.6319	54.24	50	8	
	Naphthalene	3.8938	4.3103	55.35	50	11	
	1,2,3-Trichlorobenzene	1.1393	1.2140	53.28	50	7	
	2-Methylnaphthalene	2.1679	2.2966	52.97	50	6	

DHR13 8-25

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09355 Calibration Date: 01/30/12 Time: 17:21

Lab File ID: yj30c03.d Init. Calib. Date(s): 12/23/11 12/23/11

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: DB-624 ID: .18

COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT
Dibromofluoromethane	0.2406	0.2504	52.02	50	4
Dibromofluoromethane(mz111)	0.2457	0.2558	52.04	50	4
1,2-Dichloroethane-d4	0.0601	0.0605	50.35	50	1
1,2-Dichloroethane-d4(mz104)	0.0385	0.0391	50.75	50	1
Toluene-d8(mz100)	0.8962	0.8886	49.58	50	-1
1,2-Dichloroethane-d4(mz65)	0.3192	0.3492	54.69	50	9
4-Bromofluorobenzene(mz174)	0.4486	0.4633	51.64	50	3
Toluene-d8	1.3639	1.3722	50.30	50	1
4-Bromofluorobenzene	0.5078	0.5270	51.89	50	4

Average %Drift 12

DHR13 9126

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

Lancaster Laboratories
Continuing Calibration Internal Standard Check

Initial Calibration Standards:

/chem2/HP09355.i/11dec23a.b/yd23i06.d
/chem2/HP09355.i/11dec23a.b/yd23i05.d
/chem2/HP09355.i/11dec23a.b/yd23i04.d
/chem2/HP09355.i/11dec23a.b/yd23i03.d
/chem2/HP09355.i/11dec23a.b/yd23i02.d
/chem2/HP09355.i/11dec23a.b/yd23i01.d

File /chem2/HP09355.i/11dec23a.b/yd23i03.d is Mid Level Calibration Standard used for comparison.

Current Continuing Calibration Standard:

/chem2/HP09355.i/12jan30a.b/yj30c03.d

RT Summary

Internal Standard Name	File ID: yj30c03.d	ICAL RT	In Spec
t-Butyl Alcohol-d10	2.127	2.121	Yes
Fluorobenzene	4.256	4.256	Yes
Chlorobenzene-d5	7.444	7.444	Yes
1,4-Dichlorobenzene-d4	9.439	9.440	Yes

A "No" indicates the retention time is greater than 30 seconds from the referenced ICAL standard.

Area Summary

Internal Standard Name	File ID: yj30c03.d	ICAL Area	Low Limit	High Limit	In Spec
t-Butyl Alcohol-d10	422654	499017	249508	998034	Yes
Fluorobenzene	1116316	1469356	734678	2938712	Yes
Chlorobenzene-d5	811860	1055694	527847	2111388	Yes
1,4-Dichlorobenzene-d4	525530	661634	330817	1323268	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

DHR13 0127

Comments: _____

report generated on 01/30/2012 at 17:37

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09355 Calibration Date: 01/30/12 Time: 16:54

Lab File ID: yj30c02.d Init. Calib. Date(s): 11/14/11 11/14/11

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: DB-624 ID: .18

COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT
Acetonitrile	1.1380	0.8980	197.27	250	-21
Vinyl Acetate	0.4923	0.6308	64.07	50	28
Isopropyl Acetate	0.8047	0.8434	52.40	50	5
Ethyl Acetate	0.5022	0.5932	59.06	50	18
n-Propyl Acetate	0.1772	0.1919	54.15	50	8
Butyl Acetate	0.8979	1.0026	55.83	50	12

Average %Drift 15

DWB13 0129

Minimum RRF for SPCC(#)=0.10 (0.30 for Chlorobenzene, 1,1,2,2-Tetrachloroethane)
Maximum %Drift for CCC(*)=20%

Lancaster Laboratories
Continuing Calibration Internal Standard Check

Initial Calibration Standards:

/chem2/HP09355.i/11nov14a.b/yn14i06.d
/chem2/HP09355.i/11nov14a.b/yn14i05.d
/chem2/HP09355.i/11nov14a.b/yn14i04.d
/chem2/HP09355.i/11nov14a.b/yn14i03.d
/chem2/HP09355.i/11nov14a.b/yn14i02.d
/chem2/HP09355.i/11nov14a.b/yn14i01.d

File /chem2/HP09355.i/11nov14a.b/yn14i03.d is Mid Level Calibration Standard used for comparison.

Current Continuing Calibration Standard:

/chem2/HP09355.i/12jan30a.b/yj30c02.d

RT Summary

Internal Standard Name	File ID: yj30c02.d	ICAL RT	In Spec
t-Butyl Alcohol-d10	2.145	2.127	Yes
Fluorobenzene	4.263	4.263	Yes
Chlorobenzene-d5	7.444	7.444	Yes
1,4-Dichlorobenzene-d4	9.440	9.440	Yes

A "No" indicates the retention time is greater than 30 seconds from the referenced ICAL standard.

Area Summary

Internal Standard Name	File ID: yj30c02.d	ICAL Area	Low Limit	High Limit	In Spec
t-Butyl Alcohol-d10	437627	414686	207343	829372	Yes
Fluorobenzene	1091238	1069827	534914	2139654	Yes
Chlorobenzene-d5	780946	803412	401706	1606824	Yes
1,4-Dichlorobenzene-d4	457917	499953	249976	999906	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

DHR13 9130

Comments: _____

report generated on 01/30/2012 at 17:38

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_DHR13___

Lab File ID (Standard): bj24c01.d Date Analyzed: 01/24/12

Instrument ID: HP09953 Time Analyzed: 10:33

Matrix: (soil/water) SOIL Level: (low/med) LOW Column: (pack/cap) CAP

		IS1(FBZ) AREA	#	RT	#	IS2(CBZ) AREA	#	RT	#	IS3(DCB) AREA	#	RT	#	IS4(TBA) AREA	#	RT	#
	12 HOUR STD	1303325		4.351		928918		7.545		612761		9.522		120813		2.222	
	UPPER LIMIT	2606650		4.851		1857836		8.045		1225522		10.022		241626		2.722	
	LOWER LIMIT	651662		3.851		464459		7.045		306380		9.022		60406		1.722	
	LAB SAMPLE ID																
01	VBLKB46	1157761		4.351		809958		7.545		472196		9.528		118304		2.216	
02	LCSB46	1205895		4.358		847513		7.545		521037		9.528		118172		2.222	
03	LCS1B46	1145002		4.351		802209		7.545		461791		9.528		106126		2.216	
04	LCD1B46	1193723		4.351		845129		7.545		487832		9.528		130524		2.210	
05	6526784	947545		4.351		609455		7.545		273490	*	9.528		97544		2.222	
06	6526785MS	1175962		4.351		816269		7.545		466716		9.528		121074		2.210	
07	6526786MSD	1160946		4.357		749593		7.545		346645		9.528		97107		2.228	
08	6526790	1176925		4.357		781185		7.545		373752		9.528		100951		2.222	
09	6526792	1151748		4.351		801112		7.545		436603		9.528		111014		2.216	
10	6526784RE	974424		4.351		561178		7.545		206712	*	9.528		37696	*	2.210	
11	6526793	1140328		4.351		784136		7.545		418935		9.528		95187		2.216	
12	6526795	1141234		4.351		803750		7.545		466121		9.528		121617		2.222	
13	6526796	1115646		4.351		775851		7.545		422006		9.528		114557		2.204	
14	6526788	1106746		4.351		771897		7.545		425074		9.528		123376		2.216	
15	6523626	770896		4.357		425593*		7.545		179079	*	9.528		77096		2.222	
16	6528342	1045134		4.351		731677		7.545		417129		9.528					
17	6528345	1030700		4.351		722793		7.545		410152		9.528					
18	6528347	1085839		4.351		771888		7.545		445952		9.528					
19	6528349	1050712		4.351		742506		7.545		425962		9.528					
20	6528350	1105398		4.351		813984		7.545		479792		9.528					
21	6528351	1033509		4.357		744936		7.545		435950		9.528					
22	6528352	1075197		4.351		752539		7.545		433212		9.528					

IS1 (FBZ)=Fluorobenzene
IS2 (CBZ)=Chlorobenzene-d5
IS3 (DCB)=1,4-Dichlorobenzene-d4
IS4 (TBA)=t-Butyl Alcohol-d10

UPPER LIMIT = + 100%
of internal standard area.
LOWER LIMIT = - 50%
of internal standard area.

DHR13 0132

Column used to flag values outside QC limits with an asterisk

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.: DHR13___

Lab File ID (Standard): bj24c01.d Date Analyzed: 01/24/12

Instrument ID: HP09953 Time Analyzed: 10:33

Matrix: (soil/water) SOIL Level: (low/med) LOW Column: (pack/cap) CAP

	IS1(FBZ) AREA #	RT #	IS2(CBZ) AREA #	RT #	IS3(DCB) AREA #	RT #	IS4(TBA) AREA #	RT #
12 HOUR STD	1303325	4.351	928918	7.545	612761	9.522	120813	2.222
UPPER LIMIT	2606650	4.851	1857836	8.045	1225522	10.022	241626	2.722
LOWER LIMIT	651662	3.851	464459	7.045	306380	9.022	60406	1.722
LAB SAMPLE ID								
23 6528353	1074403	4.351	766361	7.545	433880	9.528		
24 6526789	1064731	4.351	723572	7.545	374091	9.528	101845	2.216
25 6526791	1072907	4.351	749417	7.545	399093	9.528	95675	2.216

IS1 (FBZ)=Fluorobenzene
IS2 (CBZ)=Chlorobenzene-d5
IS3 (DCB)=1,4-Dichlorobenzene-d4
IS4 (TBA)=t-Butyl Alcohol-d10

UPPER LIMIT = + 100%
of internal standard area.
LOWER LIMIT = - 50%
of internal standard area.

Column used to flag values outside QC limits with an asterisk
* Values outside of QC limits.

FORM VIII VOA

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.: DHR13___

Lab File ID (Standard): yj30c03.d Date Analyzed: 01/30/12

Instrument ID: HP09355 Time Analyzed: 17:21

Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

		IS1(FBZ) AREA #	RT #	IS2(CBZ) AREA #	RT #	IS3(DCB) AREA #	RT #	IS4(TBA) AREA #	RT #
	12 HOUR STD	1116316	4.256	811860	7.444	525530	9.439	422654	2.127
	UPPER LIMIT	2232632	4.756	1623720	7.944	1051060	9.939	845308	2.627
	LOWER LIMIT	558158	3.756	405930	6.944	262765	8.939	211327	1.627
	LAB SAMPLE ID								
01	VBLKY79	1097949	4.262	781191	7.444	468920	9.440	432837	2.151
02	LCSY79	1123835	4.262	808235	7.444	517464	9.440	464542	2.158
03	LCDY79	1143085	4.262	825266	7.444	518854	9.440	422880	2.139
04	LCS1Y79	1149546	4.256	812411	7.438	489302	9.433	435594	2.127
05	LCD1Y79	1130483	4.256	801486	7.438	477464	9.440	448215	2.127
06	6534448	1045363	4.262	751176	7.444	449261	9.440		
07	6534451	1033596	4.262	738756	7.444	433561	9.440		
08	6526794	997193	4.262	710402	7.444	422519	9.440	378957	2.145
09	6528070	981422	4.256	704375	7.444	422074	9.440	381779	2.139
10	6528071	979269	4.262	703462	7.444	417717	9.440	355628	2.139
11	6528072	961942	4.262	683905	7.444	406065	9.440	374677	2.151
12	6528074	946317	4.262	674494	7.444	400072	9.439	357624	2.151
13	6528073	932512	4.262	667547	7.444	394503	9.440	330659	2.145
14	6528489DL	941053	4.256	667724	7.444	402281	9.440	365677	2.139
15	6529865	927527	4.262	660882	7.444	391327	9.439	359224	2.139
16	6529866	903773	4.262	644164	7.438	384329	9.440	348846	2.139
17	6529862	930627	4.256	672907	7.438	394025	9.439	353991	2.133
18	6529863	916684	4.256	649394	7.444	387403	9.440	350848	2.145
19	6529864	882394	4.262	634169	7.444	374714	9.440	345230	2.139
20	6530138	878397	4.262	623826	7.444	371561	9.440		
21	6530139	864099	4.262	618686	7.444	364021	9.440		
22	6530140	852569	4.262	610477	7.444	364504	9.440		

IS1 (FBZ)=Fluorobenzene
IS2 (CBZ)=Chlorobenzene-d5
IS3 (DCB)=1,4-Dichlorobenzene-d4
IS4 (TBA)=t-Butyl Alcohol-d10

UPPER LIMIT = + 100%
of internal standard area.
LOWER LIMIT = - 50%
of internal standard area.

DHR13 0134

Column used to flag values outside QC limits with an asterisk
* Values outside of QC limits.

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_DHR13___

Lab File ID (Standard): yj30c03.d Date Analyzed: 01/30/12

Instrument ID: HP09355 Time Analyzed: 17:21

Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

	IS1(FBZ) AREA #	RT #	IS2(CBZ) AREA #	RT #	IS3(DCB) AREA #	RT #	IS4(TBA) AREA #	RT #
12 HOUR STD	1116316	4.256	811860	7.444	525530	9.439	422654	2.127
UPPER LIMIT	2232632	4.756	1623720	7.944	1051060	9.939	845308	2.627
LOWER LIMIT	558158	3.756	405930	6.944	262765	8.939	211327	1.627
LAB SAMPLE ID								
23 6530141	860894	4.250	621987	7.438	365336	9.439		
24 6530142	847263	4.262	608296	7.444	358409	9.439		

IS1 (FBZ)=Fluorobenzene
IS2 (CBZ)=Chlorobenzene-d5
IS3 (DCB)=1,4-Dichlorobenzene-d4
IS4 (TBA)=t-Butyl Alcohol-d10

UPPER LIMIT = + 100%
of internal standard area.
LOWER LIMIT = - 50%
of internal standard area.

Column used to flag values outside QC limits with an asterisk
* Values outside of QC limits.

FORM VIII VOA

Preparation and Run Logs

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VOA Prep Summary by SDG: DHR13

21 - GC/MS Volatiles

Sample Number	Bottle Code	Prep Analysis#	Vial ID	Used for Analysis?	Collected	Prepared	Initial Weight	Final Weight	Net soil weight	Weight requirement	Meets require-ments?	Preserv. lot #	Preservative (volume)	Final Extraction Vol (mL)	Problem Codes
6526784	150A	00374	12389101	Y	01/18/12 09:45	01/19/12 21:48	0.00 g	4.83 g	4.83 g	4.50 g - 5.50 g	Y	1235401	DI Water (5 mL)	5.000	
6526784	150B	00374	12389102	Y	01/18/12 09:45	01/19/12 21:48	0.00 g	5.02 g	5.02 g	4.50 g - 5.50 g	Y	1235401	DI Water (5 mL)	5.000	
6526784	169A	06646	12389119	N	01/18/12 09:45	01/19/12 21:18	0.00 g	4.60 g	4.60 g	4.50 g - 5.50 g	Y	1135601	MeOH w/surrogate (5 mL)	5.000	
6526785	150A	00374	12389100	Y	01/18/12 09:45	01/19/12 21:48	0.00 g	4.99 g	4.99 g	4.50 g - 5.50 g	Y	1235401	DI Water (5 mL)	5.000	
6526785	150B	00374	12389099	N	01/18/12 09:45	01/19/12 21:48	0.00 g	4.63 g	4.63 g	4.50 g - 5.50 g	Y	1235401	DI Water (5 mL)	5.000	
6526785	169A	06646	12389107	N	01/18/12 09:45	01/19/12 21:20	0.00 g	4.87 g	4.87 g	4.50 g - 5.50 g	Y	1135601	MeOH w/surrogate (5 mL)	5.000	
6526786	150A	00374	12389097	N	01/18/12 09:45	01/19/12 21:48	0.00 g	4.69 g	4.69 g	4.50 g - 5.50 g	Y	1235401	DI Water (5 mL)	5.000	
6526786	150B	00374	12389098	Y	01/18/12 09:45	01/19/12 21:48	0.00 g	4.97 g	4.97 g	4.50 g - 5.50 g	Y	1235401	DI Water (5 mL)	5.000	
6526786	169A	06646	12389113	N	01/18/12 09:45	01/19/12 21:22	0.00 g	4.81 g	4.81 g	4.50 g - 5.50 g	Y	1135601	MeOH w/surrogate (5 mL)	5.000	
6526788	150A	00374	12389095	N	01/18/12 10:00	01/19/12 21:48	0.00 g	5.48 g	5.48 g	4.50 g - 5.50 g	Y	1235401	DI Water (5 mL)	5.000	
6526788	150B	00374	12389096	Y	01/18/12 10:00	01/19/12 21:48	0.00 g	4.69 g	4.69 g	4.50 g - 5.50 g	Y	1235401	DI Water (5 mL)	5.000	
6526788	169A	06646	12389114	N	01/18/12 10:00	01/19/12 21:24	0.00 g	4.96 g	4.96 g	4.50 g - 5.50 g	Y	1135601	MeOH w/surrogate (5 mL)	5.000	
6526789	150A	00374	12389093	Y	01/18/12 10:00	01/19/12 21:48	0.00 g	5.10 g	5.10 g	4.50 g - 5.50 g	Y	1235401	DI Water (5 mL)	5.000	
6526789	150B	00374	12389094	N	01/18/12 10:00	01/19/12 21:48	0.00 g	5.15 g	5.15 g	4.50 g - 5.50 g	Y	1235401	DI Water (5 mL)	5.000	
6526789	169A	06646	12389112	N	01/18/12 10:00	01/19/12 21:26	0.00 g	5.35 g	5.35 g	4.50 g - 5.50 g	Y	1135601	MeOH w/surrogate (5 mL)	5.000	
6526790	150A	00374	12389091	Y	01/18/12 10:15	01/19/12 21:48	0.00 g	4.79 g	4.79 g	4.50 g - 5.50 g	Y	1235401	DI Water (5 mL)	5.000	
6526790	150B	00374	12389092	N	01/18/12 10:15	01/19/12 21:48	0.00 g	5.24 g	5.24 g	4.50 g - 5.50 g	Y	1235401	DI Water (5 mL)	5.000	
6526790	169A	06646	12389116	N	01/18/12 10:15	01/19/12 21:29	0.00 g	4.78 g	4.78 g	4.50 g - 5.50 g	Y	1135601	MeOH w/surrogate (5 mL)	5.000	
6526791	150A	00374	12389090	N	01/18/12 13:30	01/19/12 21:48	0.00 g	5.42 g	5.42 g	4.50 g - 5.50 g	Y	1235401	DI Water (5 mL)	5.000	
6526791	150B	00374	12389089	Y	01/18/12 13:30	01/19/12 21:48	0.00 g	5.39 g	5.39 g	4.50 g - 5.50 g	Y	1235401	DI Water (5 mL)	5.000	
6526791	169A	06646	12389115	N	01/18/12 13:30	01/19/12 21:30	0.00 g	4.62 g	4.62 g	4.50 g - 5.50 g	Y	1135601	MeOH w/surrogate (5 mL)	5.000	
6526792	150A	00374	12389087	Y	01/18/12 14:00	01/19/12 21:49	0.00 g	4.98 g	4.98 g	4.50 g - 5.50 g	Y	1235401	DI Water (5 mL)	5.000	
6526792	150B	00374	12389088	N	01/18/12 14:00	01/19/12 21:49	0.00 g	5.24 g	5.24 g	4.50 g - 5.50 g	Y	1235401	DI Water (5 mL)	5.000	
6526792	169A	06646	12389111	N	01/18/12 14:00	01/19/12 21:36	0.00 g	4.92 g	4.92 g	4.50 g - 5.50 g	Y	1135601	MeOH w/surrogate (5 mL)	5.000	
6526793	150A	00374	12389085	N	01/18/12 14:15	01/19/12 21:49	0.00 g	5.43 g	5.43 g	4.50 g - 5.50 g	Y	1235401	DI Water (5 mL)	5.000	

Final Extraction Vol (mL) = Preservative Vol + Added MeOH (if applicable)

KEY to problem codes:

A = wt. does not meet requirements B = vial leaked C# where # = volume of MeOH added in mL due to sample not covered/matrix (lot #)
D = sampler not full E = effervescence observed F = pH >= 2 G = headspace in container

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VOA Prep Summary by SDG: DHR13

21 - GC/MS Volatiles

Sample Number	Bottle Code	Prep Analysis#	Vial ID	Used for Analysis?	Collected	Prepared	Initial Weight	Final Weight	Net soil weight	Weight requirement	Meets requirements?	Preserv. lot #	Preservative (volume)	Final Extraction Vol (mL)	Problem Codes
6526793	150B	00374	12389086	Y	01/18/12 14:15	01/19/12 21:49	0.00 g	4.61 g	4.61 g	4.50 g - 5.50 g	Y	1235401	DI Water (5 mL)	5.000	
6526793	169A	06646	12389110	N	01/18/12 14:15	01/19/12 21:38	0.00 g	4.93 g	4.93 g	4.50 g - 5.50 g	Y	1135601	MeOH w/surrogate (5 mL)	5.000	

Final Extraction Vol (mL) = Preservative Vol + Added MeOH (if applicable)

KEY to problem codes:

A = wt. does not meet requirements B = vial leaked C# where # = volume of MeOH added in mL due to sample not covered/matrix (lot #)
D = sampler not full E = effervescence observed F = pH >= 2 G = headspace in container

Lancaster Laboratories
Runlog for Hewelet Packard GC/MS System HP09953 **HP #24**

** Shift #1 Analyst:____CBE_____** Shift #2 Analyst:_____** Shift #3 Analyst:
____SAS____*

Comment Code:	R	= Reinjection necessary	X	=	Sample sent to be reextracted
	S	= Surrogate problem	I	=	Internal Standard problem
	NU	= Not used	F	=	Further dilution required
	MR	= Meets requirements	IUO	=	Internal use only
	Cz	= Confirms z, (z = S, I or X)	T	=	Injected outside valid tune period

Other problems or comments are as follows:

*____*LINE ADDED MANUALLY, SENT TO WRONG DIRECTORY_____*

_____

_____$MANUAL EDIT_____

_____

Data Directory Path is - C:\MSDCHEM\1\DATA\11NOV16A\

FILE	SAMPLE	LLI#	DATE	TIME	BATCH	D.F.	NOTES
BN15T01.D	10L BFB SEP28-11	50 NG BFB	15 Nov 2011	01:22			MR*
BN16I01.D	VSTD300	VSTD300	15 Nov 2011	02:04			MR
BN16I02.D	VSTD100	VSTD100	15 Nov 2011	02:36			MR
BN16I03.D	VSTD050	VSTD050	15 Nov 2011	02:58			MR
BN16I04.D	VSTD020	VSTD020	15 Nov 2011	03:33			MR
BN16I05.D	VSTD010	VSTD010	15 Nov 2011	03:55			MR
BN16I06.D	VSTD004	VSTD004	15 Nov 2011	04:30			MR
BN16I07.D	MDL001	MDL001	15 Nov 2011	05:00			MR$
BN16M01.D	ICVB01	ICVB01	15 Nov 2011	05:28			MR$
BN15I10A.D	VSTD300	VSTD300	15 Nov 2011	09:58			MR
BN15I11A.D	VSTD100	VSTD100	15 Nov 2011	10:23			MR
BN15I12.D	VSTD050	VSTD050	15 Nov 2011	11:05			MR
BN15I13.D	VSTD020	VSTD020	15 Nov 2011	11:29			MR
BN15I14.D	VSTD010	VSTD010	15 Nov 2011	11:56			MR
BN15I15.D	VSTD004	VSTD004	15 Nov 2011	12:19			MR
BN15M10.D	MDL001	MDL001	15 Nov 2011	12:41			MR

Lancaster Laboratories
Runlog for Hewelet Packard GC/MS System HP09953 **HP #24**

** Shift #1 Analyst:_____** Shift #2 Analyst:_____** Shift #3 Analyst:____SAS____*

Comment Code:

R	= Reinjection necessary	X	= Sample sent to be reextracted
S	= Surrogate problem	I	= Internal Standard problem
NU	= Not used	F	= Further dilution required
MR	= Meets requirements	IUO	= Internal use only
Cz	= Confirms z, (z = S, I or X)	T	= Injected outside valid tune period

Other problems or comments are as follows:

_____

_____

_____$MANUAL EDIT_____

_____

Data Directory Path is - C:\MSDCHEM\1\DATA\11NOV16A\

FILE	SAMPLE	LLI#	DATE	TIME	BATCH	D.F.	NOTES
BN15T01.D	1UL BFB SEP28-11	50 NG BFB	15 Nov 2011	01:22			MR
BN16I01.D	VSTD300	VSTD300	15 Nov 2011	02:04			MR
BN16I02.D	VSTD100	VSTD100	15 Nov 2011	02:36			MR
BN16I03.D	VSTD050	VSTD050	15 Nov 2011	02:58			MR
BN16I04.D	VSTD020	VSTD020	15 Nov 2011	03:33			MR
BN16I05.D	VSTD010	VSTD010	15 Nov 2011	03:55			MR
BN16I06.D	VSTD004	VSTD004	15 Nov 2011	04:30			MR
BN16I07.D	MDL001	MDL001	15 Nov 2011	05:00			MR$
BN16M01.D	ICVB01	ICVB01	15 Nov 2011	05:28			MR$

Lancaster Laboratories
Runlog for Hewelet Packard GC/MS System HP09953 **HP #24**

** Shift #1 Analyst: CBE ** Shift #2 Analyst: _____ ** Shift #3 Analyst: _____ *

Comment Code:
R = Reinjection necessary
S = Surrogate problem
NU = Not used
MR = Meets requirements
Cz = Confirms z, (z = S, I or X)
X = Sample sent to be reextracted
I = Internal Standard problem
F = Further dilution required
IUO = Internal use only
T = Injected outside valid tune period

Other problems or comments are as follows:

Data Directory Path is - C:\MSDCHEM\1\DATA\12JAN24A\

FILE	SAMPLE	LLI#	DATE	TIME	BATCH	D.F.	NOTES
BJ24X05.D	CLNBLK	CLNBLK	24 Jan 2012	09:23			NU
BJ24X06.D	CLNBLK	CLNBLK	24 Jan 2012	09:45			NU
BJ24T01.D	1UL BFB SEP28-11	50 NG BFB	24 Jan 2012	10:09			MR
BJ24C01.D	VSTD050	VSTD050	24 Jan 2012	10:33			MR
BJ24C02.D	VSTD050	VSTD050	24 Jan 2012	11:02			MR
BJ24B01.D	VBLKB46	VBLKB46	24 Jan 2012	11:25	B120241AA		NU
BJ24B02.D	VBLKB46	VBLKB46	24 Jan 2012	11:48	B120241AA		MR
BJ24L01.D	LCSB46	LCSB46	24 Jan 2012	12:20	B120241AA		MR
BJ24L02.D	LCS1B46	LCS1B46	24 Jan 2012	12:42	B120241AA		MR
BJ24L03.D	LCD1B46	LCD1B46	24 Jan 2012	13:05	B120241AA		MR
BJ24S01.D	XXXXX	6526784	24 Jan 2012	14:02	B120241AA		I
BJ24S02.D	XXXXXMS	6526785MS	24 Jan 2012	14:24	B120241AA		MR
BJ24S03.D	XXXXXMSD	6526786MSD	24 Jan 2012	14:47	B120241AA		MR
BJ24S04.D	XXXXX	6526790	24 Jan 2012	15:09	B120241AA		MR
BJ24S05.D	XXXXX	6526792	24 Jan 2012	15:31	B120241AA		MR
BJ24S23.D	XXXXXRE	6526784RE	24 Jan 2012	15:54	B120241AA		CI
BJ24S06.D	XXXXX	6526793	24 Jan 2012	16:16	B120241AA		MR
BJ24S07.D	XXXXX	6526795	24 Jan 2012	16:38	B120241AA		MR
BJ24S08.D	XXXXX	6526796	24 Jan 2012	17:00	B120241AA		MR
BJ24S09.D	XXXXX	6526788	24 Jan 2012	17:22	B120241AA		MR
BJ24S10.D	XXXXX	6523626	24 Jan 2012	17:45	B120241AA		IS
BJ24S11.D	XXXXX	6528342	24 Jan 2012	18:08	B120241AA		MR
BJ24S12.D	XXXXX	6528344	24 Jan 2012	18:30	B120241AA		S
BJ24S13.D	XXXXX	6528345	24 Jan 2012	18:52	B120241AA		MR
BJ24S14.D	XXXXX	6528347	24 Jan 2012	19:15	B120241AA		MR
BJ24S15.D	XXXXX	6528349	24 Jan 2012	19:37	B120241AA		MR
BJ24S16.D	XXXXX	6528350	24 Jan 2012	19:59	B120241AA		MR
BJ24S17.D	XXXXX	6528351	24 Jan 2012	20:21	B120241AA		MR
BJ24S18.D	XXXXX	6528352	24 Jan 2012	20:43	B120241AA		MR
BJ24S19.D	XXXXX	6528353	24 Jan 2012	21:06	B120241AA		MR
BJ24S21.D	XXXXX	6526789	24 Jan 2012	21:28	B120241AA		MR
BJ24S22.D	XXXXX	6526791	24 Jan 2012	21:51	B120241AA		MR

Lancaster Laboratories
Runlog for Hewelet Packard GC/MS System HP09355 **HP #20**

** Shift #1 Analyst: JML ** Shift #2 Analyst: SEJ ** Shift #3 Analyst: _____ *

Comment Code:
R = Reinjection necessary
S = Surrogate problem
NU = Not used
MR = Meets requirements
Cz = Confirms z, (z = S, I or X)
X = Sample sent to be reextracted
I = Internal Standard problem
F = Further dilution required
IUO = Internal use only
T = Injected outside valid tune period

Other problems or comments are as follows:

Data Directory Path is - C:\msdchem\1\11DEC23A\

FILE	SAMPLE	LLI#	DATE	TIME	BATCH	D.F.	NOTES
YD23T01.D	50ng BFB	BFB SEP28-11	23 Dec 2011	14:29			MR
YD23I01.D	VSTD300	VSTD300	23 Dec 2011	14:47			MR
YD23I02.D	VSTD100	VSTD100	23 Dec 2011	15:08			MR
YD23I03.D	VSTD050	VSTD050	23 Dec 2011	15:29			MR
YD23I04.D	VSTD020	VSTD020	23 Dec 2011	15:49			MR
YD23I05.D	VSTD010	VSTD010	23 Dec 2011	16:10			MR
YD23I06.D	VSTD004	VSTD004	23 Dec 2011	16:30			MR
YD23M01.D	MDL001	MDL001	23 Dec 2011	16:51			MR
YD23CV1.D	ICVYLG	ICVYLG	23 Dec 2011	17:12	Y113579AA		MR

Lancaster Laboratories
Runlog for Hewelet Packard GC/MS System HP09355 **HP #20**

** Shift #1 Analyst: NRR ** Shift #2 Analyst: _____ ** Shift #3 Analyst: _____ *

Comment Code:

R =	Reinjection necessary	X =	Sample sent to be reextracted
S =	Surrogate problem	I =	Internal Standard problem
NU =	Not used	F =	Further dilution required
MR =	Meets requirements	IUO =	Internal use only
Cz =	Confirms z, (z = S, I or X)	T =	Injected outside valid tune period

Other problems or comments are as follows:

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*
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*

Data Directory Path is - C:\MSDCHEM\1\11NOV14A\

FILE	SAMPLE	LLI#	DATE	TIME	BATCH	D.F.	NOTES
YN14T01.D	BFB SEP28-11	50NG BFB	14 Nov 2011	09:24			MR
YN14I01.D	VSTD300	VSTD300	14 Nov 2011	09:41			MR
YN14I02.D	VSTD100	VSTD100	14 Nov 2011	10:02			MR
YN14I03.D	VSTD050	VSTD050	14 Nov 2011	10:42			MR
YN14IA4.D	VSTD020	VSTD020	14 Nov 2011	11:03			NU
YN14I04.D	VSTD020	VSTD020	14 Nov 2011	11:23			MR
YN14I05.D	VSTD010	VSTD010	14 Nov 2011	11:44			MR
YN14I06.D	VSTD004	VSTD004	14 Nov 2011	12:04			MR
YN14M01.D	MDL001	MDL001	14 Nov 2011	12:25			MR
YN14V01.D	YSMICV	YSMICV	14 Nov 2011	13:02			NU
YN14V02.D	YSMICV	YSMICV	14 Nov 2011	14:02			MR

Lancaster Laboratories
Runlog for Hewelet Packard GC/MS System HP09355 **HP #20**

** Shift #1 Analyst:_____** Shift #2 Analyst:_____** Shift #3 Analyst:_ADS_____*

Comment Code: R = Reinjection necessary X = Sample sent to be reextracted
S = Surrogate problem I = Internal Standard problem
NU = Not used F = Further dilution required
MR = Meets requirements IUO = Internal use only
Cz = Confirms z, (z = S, I or X) T = Injected outside valid tune period

Other problems or comments are as follows:

_____
_____
_____
_____-MANUALLY EDITED_____*

Data Directory Path is - C:\MSDCHEM\1\12JAN30A\

FILE	SAMPLE	LLI#	DATE	TIME	BATCH	D.F.	NOTES
YJ30X01.D	XXXXX	CLBLK	30 Jan 2012	15:26			NU
YJ30X02.D	XXXXX	CLBLK	30 Jan 2012	15:46			NU
YJ30T01.D	50NG BFB SEP28-11		30 Jan 2012	16:10			MR
YJ30C01.D	VSTD050	VSTD050	30 Jan 2012	16:34			NU
YJ30C02.D	VSTD050	VSTD050	30 Jan 2012	16:54			MR
YJ30C03.D	VSTD050	VSTD050	30 Jan 2012	17:21			MR
YJ30B01.D	VBLKY79	VBLKY79	30 Jan 2012	17:41	Y120301AA		MR
YJ30L01.D	LCSY79	LCSY79	30 Jan 2012	18:02	Y120301AA		MR
YJ30L02.D	LCDY79	LCDY79	30 Jan 2012	18:22	Y120301AA		MR
YJ30L03.D	LCS1Y79	LCS1Y79	30 Jan 2012	18:43	Y120301AA*		MR
YJ30L04.D	LCD1Y79	LCD1Y79	30 Jan 2012	19:04	Y120301AA*		MR
YJ30S01.D	XXXXX	6534448	30 Jan 2012	20:00	Y120301AA		MR
YJ30S02.D	XXXXX	6534451	30 Jan 2012	20:20	Y120301AA		MR
YJ30S03.D	XXXXX	6526794	30 Jan 2012	20:41	Y120301AA		MR
YJ30S04.D	XXXXX	6528070	30 Jan 2012	21:02	Y120301AA		MR
YJ30S05.D	XXXXX	6528071	30 Jan 2012	21:22	Y120301AA		MR
YJ30S06.D	XXXXX	6528072	30 Jan 2012	21:43	Y120301AA		MR
YJ30S07.D	XXXXX	6528074	30 Jan 2012	22:03	Y120301AA		MR
YJ30S08.D	XXXXX	6528073	30 Jan 2012	22:24	Y120301AA		MR
YJ30S09.D	XXXXXDL	6528489DL	30 Jan 2012	22:45	Y120301AA	10	MR
YJ30S10.D	XXXXX	6529865	30 Jan 2012	23:05	Y120301AA		MR
YJ30S11.D	XXXXX	6529866	30 Jan 2012	23:26	Y120301AA		MR
YJ30S12.D	XXXXX	6529862	30 Jan 2012	23:47	Y120301AA		MR
YJ30S13.D	XXXXXDL	6529862DL	31 Jan 2012	00:07	Y120301AA	10	NU
YJ30S14.D	XXXXX	6529863*	31 Jan 2012	00:28	Y120301AA		MR
YJ30S15.D	XXXXXDL	6529862DL	31 Jan 2012	00:48	Y120301AA	10	NU
YJ30S16.D	XXXXX	6529864	31 Jan 2012	01:09	Y120301AA		MR
YJ30S17.D	XXXXX	6530138	31 Jan 2012	01:30	Y120301AA		MR
YJ30S18.D	XXXXX	6530139	31 Jan 2012	01:50	Y120301AA		MR
YJ30S19.D	XXXXX	6530140	31 Jan 2012	02:11	Y120301AA		MR
YJ30S20.D	XXXXX	6530141	31 Jan 2012	02:31	Y120301AA		MR
YJ30S21.D	XXXXX	6530142	31 Jan 2012	02:52	Y120301AA		MR

Semivolatiles by GC/MS Data

DHR13 6145

Case Narrative
Conformance/Nonconformance Summary

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Case Narrative

CLIENT: CH2M Hill, Inc.
SDG: DHR13

GC/MS Semivolatiles
Fraction: Semivolatiles by GC/MS

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

MS/MSD

Please note that US EPA methods for organic compounds do not require action by the laboratory based on out-of-specification MS/MSD results.

LCS/LCSD

Sample numbers 6526784, 6526788–6526793: The recovery for a 2-chloronaphthalene in the Laboratory Control Spike is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte was not detected in the samples, the data is reported.

SAMPLE ANALYSIS:

Sample numbers 6526784–6526786, 6526788, 6526789: Reporting limits were raised due to interference from the sample matrix.

No other problems were encountered with the analysis of the samples.

DATA INTERPRETATION:

No further interpretation is necessary for the data submitted.

Abbreviation Key

UNSPK = Unspiked (for MS/MSD)	LOQ = Limit of Quantitation
MS = Matrix Spike	MDL = Method Detection Limit
MSD = Matrix Spike Duplicate	ND = Not Detected
BKG = Background (for Duplicate)	J = Estimated Value
D = Duplicate (DUP)	E= out of calibration range
LCS = Lab Control Sample	RE = Repreparation/Reanalysis
LCSD = Lab Control Sample Duplicate	* = Out of Specification

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Case Narrative

CLIENT: CH2M Hill, Inc.
SDG: DHR13

GC/MS Semivolatiles
Fraction: Semivolatiles by GC/MS

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

MS/MSD

Please note that US EPA methods for organic compounds do not require action by the laboratory based on out-of-specification MS/MSD results.

LCS/LCSD

Sample numbers 6526784, 6526788–6526793: The recovery for a 2-chloronaphthalene in the Laboratory Control Spike is outside the QC acceptance limits as noted on the QC Summary. Since the recovery is high and the target analyte was not detected in the sample, the data is reported.

SAMPLE ANALYSIS:

Sample numbers 6526784–6526786, 6526788, 6526789: Reporting limits were raised due to interference from the sample matrix.

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DATA INTERPRETATION:

No further interpretation is necessary for the data submitted.

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UNSPK = Unspiked (for MS/MSD)	LOQ = Limit of Quantitation
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Case Narrative

CLIENT: CH2M Hill, Inc.
SDG: DHR13

GC/MS Semivolatiles
Fraction: Semivolatiles by GC/MS

Narrative Reviewed and Approved 2/2/12 by
(Date)

Lydia C. Steinke
Specialist

DHR13 0149

Quality Control and Calibration Summary Forms

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LOQ/MDL Summary
GC/MS Semivolatiles

SDG: DHR13

Fraction: Semivolatiles by GC/MS

10727: TCL 8270 (microwave) Analyte Name	Default MDL	Default LOQ	Units
1,4-Dioxane	100	330	ug/kg
Phenol	17	33	ug/kg
bis(2-Chloroethyl)ether	17	33	ug/kg
2-Chlorophenol	17	33	ug/kg
Benzyl alcohol	170	500	ug/kg
2-Methylphenol	17	33	ug/kg
bis(2-Chloroisopropyl)ether	17	33	ug/kg
4-Methylphenol	17	33	ug/kg
N-Nitroso-di-n-propylamine	17	33	ug/kg
Hexachloroethane	33	170	ug/kg
Nitrobenzene	17	33	ug/kg
Isophorone	17	33	ug/kg
2-Nitrophenol	17	33	ug/kg
2,4-Dimethylphenol	17	33	ug/kg
bis(2-Chloroethoxy)methane	17	33	ug/kg
2,4-Dichlorophenol	17	33	ug/kg
4-Chloroaniline	17	33	ug/kg
4-Chloro-3-methylphenol	17	33	ug/kg
2-Methylnaphthalene	3	17	ug/kg
Hexachlorocyclopentadiene	170	500	ug/kg
2,4,6-Trichlorophenol	17	33	ug/kg
2,4,5-Trichlorophenol	17	33	ug/kg
1,1'-Biphenyl	17	33	ug/kg
2-Chloronaphthalene	7	33	ug/kg
2-Nitroaniline	17	33	ug/kg
Dimethylphthalate	67	170	ug/kg
2,6-Dinitrotoluene	17	33	ug/kg
Acenaphthylene	3	17	ug/kg
3-Nitroaniline	67	170	ug/kg
Acenaphthene	3	17	ug/kg
2,4-Dinitrophenol	300	1,000	ug/kg
4-Nitrophenol	170	500	ug/kg
2,4-Dinitrotoluene	67	170	ug/kg
Dibenzofuran	17	33	ug/kg
Diethylphthalate	67	170	ug/kg
Fluorene	3	17	ug/kg
4-Chlorophenyl-phenylether	17	33	ug/kg
4-Nitroaniline	67	170	ug/kg
4,6-Dinitro-2-methylphenol	170	500	ug/kg
N-Nitrosodiphenylamine	17	33	ug/kg
4-Bromophenyl-phenylether	17	33	ug/kg
Hexachlorobenzene	3	17	ug/kg
Pentachlorophenol	33	170	ug/kg
Phenanthrene	3	17	ug/kg
Anthracene	3	17	ug/kg
Carbazole	17	33	ug/kg
Di-n-butylphthalate	67	170	ug/kg

DHR13 0151

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LOQ/MDL Summary
GC/MS Semivolatiles

SDG: DHR13

Fraction: Semivolatiles by GC/MS

10727: TCL 8270 (microwave) Analyte Name	Default MDL	Default LOQ	Units
Fluoranthene	3	17	ug/kg
Pyrene	3	17	ug/kg
Butylbenzylphthalate	67	170	ug/kg
bis(2-Ethylhexyl)phthalate	67	170	ug/kg
3,3'-Dichlorobenzidine	100	330	ug/kg
Benzo(a)anthracene	3	17	ug/kg
Chrysene	3	17	ug/kg
Di-n-octylphthalate	67	170	ug/kg
Benzo(b)fluoranthene	3	17	ug/kg
Benzo(k)fluoranthene	3	17	ug/kg
Benzo(a)pyrene	3	17	ug/kg
Indeno(1,2,3-cd)pyrene	3	17	ug/kg
Dibenz(a,h)anthracene	3	17	ug/kg
Benzo(g,h,i)perylene	3	17	ug/kg

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Quality Control Reference List
GC/MS Semivolatiles

CLIENT: CH2M Hill, Inc.
SDG: DHR13

Fraction: Semivolatiles by GC/MS

Analysis	Batch Number	Sample Number	Analysis Date
TCL 8270 (microwave)	12020SLA026	SBLKLA020	01/22/2012 18:32:00
		020LALCS	01/22/2012 18:56:00
		6526784 UNSPK	01/23/2012 14:52:00
		6526785 MS	01/23/2012 15:17:00
		6526786 MSD	01/23/2012 15:41:00
		6526788	01/23/2012 16:05:00
		6526789	01/23/2012 16:30:00
		6526790	01/23/2012 00:55:00
		6526791	01/23/2012 01:20:00
		6526792	01/23/2012 01:43:00
		6526793	01/23/2012 02:07:00

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Quality Control Summary
Method Blank
GC/MS Semivolatiles
SDG: DHR13
Matrix: SOLID

Fraction: Semivolatiles by GC/MS

12020SLA026 / SBLKLA020 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
1,4-Dioxane	01/22/12	N.D.	ug/kg	100	330
Phenol	01/22/12	N.D.	ug/kg	17	33
bis(2-Chloroethyl)ether	01/22/12	N.D.	ug/kg	17	33
2-Chlorophenol	01/22/12	N.D.	ug/kg	17	33
Benzyl alcohol	01/22/12	N.D.	ug/kg	170	500
2-Methylphenol	01/22/12	N.D.	ug/kg	17	33
bis(2-Chloroisopropyl)ether	01/22/12	N.D.	ug/kg	17	33
4-Methylphenol	01/22/12	N.D.	ug/kg	17	33
N-Nitroso-di-n-propylamine	01/22/12	N.D.	ug/kg	17	33
Hexachloroethane	01/22/12	N.D.	ug/kg	33	170
Nitrobenzene	01/22/12	N.D.	ug/kg	17	33
Isophorone	01/22/12	N.D.	ug/kg	17	33
2-Nitrophenol	01/22/12	N.D.	ug/kg	17	33
2,4-Dimethylphenol	01/22/12	N.D.	ug/kg	17	33
bis(2-Chloroethoxy)methane	01/22/12	N.D.	ug/kg	17	33
2,4-Dichlorophenol	01/22/12	N.D.	ug/kg	17	33
4-Chloroaniline	01/22/12	N.D.	ug/kg	17	33
4-Chloro-3-methylphenol	01/22/12	N.D.	ug/kg	17	33
2-Methylnaphthalene	01/22/12	N.D.	ug/kg	3	17
Hexachlorocyclopentadiene	01/22/12	N.D.	ug/kg	170	500
2,4,6-Trichlorophenol	01/22/12	N.D.	ug/kg	17	33
2,4,5-Trichlorophenol	01/22/12	N.D.	ug/kg	17	33
1,1'-Biphenyl	01/22/12	N.D.	ug/kg	17	33
2-Chloronaphthalene	01/22/12	N.D.	ug/kg	7	33
2-Nitroaniline	01/22/12	N.D.	ug/kg	17	33
Dimethylphthalate	01/22/12	N.D.	ug/kg	67	170
2,6-Dinitrotoluene	01/22/12	N.D.	ug/kg	17	33
Acenaphthylene	01/22/12	N.D.	ug/kg	3	17
3-Nitroaniline	01/22/12	N.D.	ug/kg	67	170
Acenaphthene	01/22/12	N.D.	ug/kg	3	17
2,4-Dinitrophenol	01/22/12	N.D.	ug/kg	300	1000
4-Nitrophenol	01/22/12	N.D.	ug/kg	170	500
2,4-Dinitrotoluene	01/22/12	N.D.	ug/kg	67	170
Dibenzofuran	01/22/12	N.D.	ug/kg	17	33
Diethylphthalate	01/22/12	N.D.	ug/kg	67	170
Fluorene	01/22/12	N.D.	ug/kg	3	17
4-Chlorophenyl-phenylether	01/22/12	N.D.	ug/kg	17	33
4-Nitroaniline	01/22/12	N.D.	ug/kg	67	170
4,6-Dinitro-2-methylphenol	01/22/12	N.D.	ug/kg	170	500
N-Nitrosodiphenylamine	01/22/12	N.D.	ug/kg	17	33
4-Bromophenyl-phenylether	01/22/12	N.D.	ug/kg	17	33
Hexachlorobenzene	01/22/12	N.D.	ug/kg	3	17
Pentachlorophenol	01/22/12	N.D.	ug/kg	33	170
Phenanthrene	01/22/12	N.D.	ug/kg	3	17
Anthracene	01/22/12	N.D.	ug/kg	3	17

DHR13 0154

Fraction: Semivolatiles by GC/MS

12020SLA026 / SBLKLA020 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Carbazole	01/22/12	N.D.	ug/kg	17	33
Di-n-butylphthalate	01/22/12	N.D.	ug/kg	67	170
Fluoranthene	01/22/12	N.D.	ug/kg	3	17
Pyrene	01/22/12	N.D.	ug/kg	3	17
Butylbenzylphthalate	01/22/12	N.D.	ug/kg	67	170
bis(2-Ethylhexyl)phthalate	01/22/12	N.D.	ug/kg	67	170
3,3'-Dichlorobenzidine	01/22/12	N.D.	ug/kg	100	330
Benzo(a)anthracene	01/22/12	N.D.	ug/kg	3	17
Chrysene	01/22/12	N.D.	ug/kg	3	17
Di-n-octylphthalate	01/22/12	N.D.	ug/kg	67	170
Benzo(b)fluoranthene	01/22/12	N.D.	ug/kg	3	17
Benzo(k)fluoranthene	01/22/12	N.D.	ug/kg	3	17
Benzo(a)pyrene	01/22/12	N.D.	ug/kg	3	17
Indeno(1,2,3-cd)pyrene	01/22/12	N.D.	ug/kg	3	17
Dibenz(a,h)anthracene	01/22/12	N.D.	ug/kg	3	17
Benzo(g,h,i)perylene	01/22/12	N.D.	ug/kg	3	17

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Quality Control Summary
Surrogates
GC/MS Semivolatiles
SDG: DHR13
Matrix: SOLID

Fraction: Semivolatiles by GC/MS

12020SLA026	Phenol-d6		2-Fluorophenol		2,4,6-Tribromophenol		Nitrobenzene-d5		2-Fluorobiphenyl		Terphenyl-d14	
	Spike Added	6666.667 ug/kg	Spike Added	6666.667 ug/kg	Spike Added	6666.667 ug/kg	Spike Added	3333.333 ug/kg	Spike Added	3333.333 ug/kg	Spike Added	3333.333 ug/kg
Sample	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits
SBLKLA020	87	42 - 130	100	39 - 136	101	28 - 139	88	45 - 123	98	56 - 121	107	43 - 124
020LALCS	85	42 - 130	93	39 - 136	98	28 - 139	82	45 - 123	95	56 - 121	98	43 - 124
6526784	65	42 - 130	70	39 - 136	65	28 - 139	58	45 - 123	66	56 - 121	72	43 - 124
6526785 MS	86	42 - 130	97	39 - 136	73	28 - 139	82	45 - 123	89	56 - 121	93	43 - 124
6526786 MSD	74	42 - 130	77	39 - 136	79	28 - 139	71	45 - 123	76	56 - 121	79	43 - 124
6526788	68	42 - 130	74	39 - 136	75	28 - 139	70	45 - 123	77	56 - 121	84	43 - 124
6526789	58	42 - 130	62	39 - 136	62	28 - 139	57	45 - 123	63	56 - 121	70	43 - 124
6526790	77	42 - 130	89	39 - 136	80	28 - 139	79	45 - 123	85	56 - 121	91	43 - 124
6526791	77	42 - 130	87	39 - 136	87	28 - 139	76	45 - 123	84	56 - 121	87	43 - 124
6526792	80	42 - 130	90	39 - 136	95	28 - 139	83	45 - 123	90	56 - 121	96	43 - 124
6526793	77	42 - 130	88	39 - 136	89	28 - 139	78	45 - 123	85	56 - 121	90	43 - 124

DHR13159

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Quality Control Summary
Matrix Spike/Matrix Spike Duplicate

SDG: DHR13
Matrix: SOLID

GC/MS Semivolatiles

Fraction: Semivolatiles by GC/MS

UNSPK: 6526784 MS: 6526785 MSD: 6526786 Analyte	Batch: **12020SLA026** (Sample numbers: 6526784-6526786, 6526788-6526793)								
	Spike Added ug/kg	Unspiked Conc ug/kg	MS Conc ug/kg	MSD Conc ug/kg	MS %Rec	MSD %Rec	%Rec Limits	%RPD	%RPD Limits
1,4-Dioxane	1666.67	N.D.	1141.73	N.D.	69	0 *	31-77	200 *	30
Phenol	1666.67	N.D.	1688.37	1383.03	101	83	39-151	20	30
bis(2-Chloroethyl)ether	1666.67	N.D.	1747.73	1369.52	105	82	45-139	24	30
2-Chlorophenol	1666.67	N.D.	1581.16	1258.39	95	76	29-151	23	30
Benzyl alcohol	1666.67	N.D.	N.D.	N.D.	0 *	0 *	63-128	0	30
2-Methylphenol	1666.67	N.D.	1555.99	1361.03	93	82	30-145	13	30
bis(2-Chloroisopropyl)ether	1666.67	N.D.	1368.23	1167.3	82	70	30-139	16	30
4-Methylphenol	1666.67	N.D.	1385.91	1228.22	83	74	36-149	12	30
N-Nitroso-di-n-propylamine	1666.67	N.D.	1434.87	1144.04	86	69	46-128	23	30
Hexachloroethane	1666.67	N.D.	481.41	919.04	29 *	55 *	71-104	62 *	30
Nitrobenzene	1666.67	N.D.	1591.41	1356.54	95	81	37-139	16	30
Isophorone	1666.67	N.D.	1438.54	1270.31	86	76	54-122	12	30
2-Nitrophenol	1666.67	N.D.	506.92	1034.58	30	62	25-151	68 *	30
2,4-Dimethylphenol	1666.67	N.D.	1563.57	1268.82	94	76	27-143	21	30
bis(2-Chloroethoxy)methane	1666.67	N.D.	1513.44	1283.56	91	77	44-132	16	30
2,4-Dichlorophenol	1666.67	N.D.	1669.53	1344.75	100	81	35-142	22	30
4-Chloroaniline	1666.67	N.D.	502.25	896.33	30	54	11-114	56 *	30
4-Chloro-3-methylphenol	1666.67	N.D.	1616.02	1347.98	97	81	33-144	18	30
2-Methylnaphthalene	1666.67	44.68	1607.22	1368.18	94	79	23-141	16	30
Hexachlorocyclopentadiene	3333.33	N.D.	N.D.	N.D.	0 *	0 *	10-153	0	30
2,4,6-Trichlorophenol	1666.67	N.D.	1368.68	1362.74	82	82	41-142	0	30
2,4,5-Trichlorophenol	1666.67	N.D.	1438.55	1275.94	86	77	25-143	12	30
1,1'-Biphenyl	1666.67	994.28	2766.18	2068.34	106	64	51-127	29	30
2-Chloronaphthalene	1666.67	N.D.	1580.62	1294.91	95	78	22-131	20	30
2-Nitroaniline	1666.67	N.D.	2398.03	1718.46	144	103	46-146	33 *	30
Dimethylphthalate	1666.67	N.D.	1566.45	1321.4	94	79	26-141	17	30
2,6-Dinitrotoluene	1666.67	N.D.	1423.57	1337.37	85	80	44-140	6	30
Acenaphthylene	1666.67	48.72	1634.77	1435.93	95	83	47-137	13	30
3-Nitroaniline	1666.67	N.D.	1021.92	1167.09	61	70	34-134	13	30
Acenaphthene	1666.67	N.D.	1592.46	1653.25	96	99	41-135	4	30
2,4-Dinitrophenol	3333.33	N.D.	N.D.	N.D.	0 *	0 *	20-143	0	30
4-Nitrophenol	1666.67	N.D.	N.D.	N.D.	0 *	0 *	15-149	0	30
2,4-Dinitrotoluene	1666.67	N.D.	1396.23	1242.92	84	75	27-147	12	30
Dibenzofuran	1666.67	N.D.	1596.43	1385.38	96	83	38-148	14	30
Diethylphthalate	1666.67	N.D.	1499.82	1317.7	90	79	32-137	13	30
Fluorene	1666.67	385.65	2091.5	1668.15	102	77	35-140	23	30
4-Chlorophenyl-phenylether	1666.67	N.D.	1474.24	1382.05	88	83	42-130	6	30
4-Nitroaniline	1666.67	N.D.	1579.19	1950.46	95	117	26-124	21	30
4,6-Dinitro-2-methylphenol	1666.67	N.D.	1670.88	1880.36	100	113	10-148	12	30
N-Nitrosodiphenylamine	1666.67	N.D.	1431.23	1360.14	86	82	33-148	5	30
4-Bromophenyl-phenylether	1666.67	N.D.	1543.7	1457.77	93	87	46-131	6	30
Hexachlorobenzene	1666.67	N.D.	1553.96	1416.22	93	85	53-137	9	30

Results are being reported on an as received basis.

GC/MS Semivolatiles

Fraction: Semivolatiles by GC/MS

UNSPK: 6526784 MS: 6526785 MSD: 6526786 **Analyte**	Batch: **12020SLA026** (Sample numbers: 6526784-6526786, 6526788-6526793)								
	Spike Added ug/kg	**Unspiked Conc ug/kg**	**MS Conc ug/kg**	**MSD Conc ug/kg**	**MS %Rec**	**MSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Pentachlorophenol	1666.67	N.D.	638.12	935.8	38	56	23-145	38 *	30
Phenanthrene	1666.67	796.95	2429.18	2101.42	98	78	34-147	14	30
Anthracene	1666.67	187.11	1772.79	1520.73	95	80	40-147	15	30
Carbazole	1666.67	N.D.	1529.32	1417.81	92	85	36-148	8	30
Di-n-butylphthalate	1666.67	N.D.	1651.19	1378.83	99	83	32-139	18	30
Fluoranthene	1666.67	1509.77	3299.5	2814.11	107	78	48-122	16	30
Pyrene	1666.67	1096.93	2676.04	2335.31	95	74 *	76-124	14	30
Butylbenzylphthalate	1666.67	N.D.	1453.47	1282.17	87	77	26-161	13	30
bis(2-Ethylhexyl)phthalate	1666.67	N.D.	1645.74	1492.26	99	90	38-151	10	30
3,3'-Dichlorobenzidine	1666.67	N.D.	N.D.	N.D.	0 *	0 *	10-143	0	30
Benzo(a)anthracene	1666.67	507.25	1945.71	1717.54	86	73	32-150	12	30
Chrysene	1666.67	598.33	1922.11	1735.96	79	68 *	76-114	10	30
Di-n-octylphthalate	1666.67	N.D.	1560.61	1353.71	94	81	43-149	14	30
Benzo(b)fluoranthene	1666.67	651.37	2223.28	1831.41	94	71	53-131	19	30
Benzo(k)fluoranthene	1666.67	384.62	1940.72	1642.19	93	75	61-131	17	30
Benzo(a)pyrene	1666.67	524.23	2059.1	1756.88	92	74	57-129	16	30
Indeno(1,2,3-cd)pyrene	1666.67	357.42	1833.84	1514.32	89	69	61-123	19	30
Dibenz(a,h)anthracene	1666.67	93.26	1653.88	1304.78	94	73	37-151	24	30
Benzo(g,h,i)perylene	1666.67	389.36	1897.44	1526.35	90	68	60-123	22	30

Results are being reported on an as received basis.

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate (LCSD)

SDG: DHR13
Matrix: SOLID

GC/MS Semivolatiles

Fraction: Semivolatiles by GC/MS

LCS: 020LALCS	Batch: **12020SLA026** (Sample numbers: 6526784-6526786, 6526788-6526793)							
Analyte	Spike Added ug/kg	LCS Conc ug/kg	LCSD Conc ug/kg	LCS %Rec	LCSD %Rec	%Rec Limits	%RPD	%RPD Limits
1,4-Dioxane	1666.67	942.22		57		38-75		
Phenol	1666.67	1424.74		85		74-115		
bis(2-Chloroethyl)ether	1666.67	1480.98		89		77-115		
2-Chlorophenol	1666.67	1538.51		92		83-119		
Benzyl alcohol	1666.67	1204.7		72		68-111		
2-Methylphenol	1666.67	1553.04		93		80-119		
bis(2-Chloroisopropyl)ether	1666.67	1389.08		83		65-122		
4-Methylphenol	1666.67	1367.34		82		74-116		
N-Nitroso-di-n-propylamine	1666.67	1298.09		78		70-113		
Hexachloroethane	1666.67	1410.73		85		76-109		
Nitrobenzene	1666.67	1506.76		90		78-122		
Isophorone	1666.67	1454.7		87		72-107		
2-Nitrophenol	1666.67	1573.58		94		81-114		
2,4-Dimethylphenol	1666.67	1569.54		94		83-120		
bis(2-Chloroethoxy)methane	1666.67	1502.38		90		82-113		
2,4-Dichlorophenol	1666.67	1577.42		95		87-117		
4-Chloroaniline	1666.67	450.15		27		10-97		
4-Chloro-3-methylphenol	1666.67	1465.95		88		74-119		
2-Methylnaphthalene	1666.67	1519.15		91		79-110		
Hexachlorocyclopentadiene	3333.33	3479.34		104		64-127		
2,4,6-Trichlorophenol	1666.67	1681.9		101		88-114		
2,4,5-Trichlorophenol	1666.67	1632.68		98		84-109		
1,1'-Biphenyl	1666.67	1571.47		94		82-106		
2-Chloronaphthalene	1666.67	2007.47		120 *		50-117		
2-Nitroaniline	1666.67	1604.51		96		83-118		
Dimethylphthalate	1666.67	1605.52		96		85-111		
2,6-Dinitrotoluene	1666.67	1666.27		100		79-115		
Acenaphthylene	1666.67	1710.75		103		68-120		
3-Nitroaniline	1666.67	1305.85		78		66-114		
Acenaphthene	1666.67	1632.88		98		83-111		
2,4-Dinitrophenol	3333.33	2890.03		87		39-126		
4-Nitrophenol	1666.67	1285.01		77		57-131		
2,4-Dinitrotoluene	1666.67	1603.36		96		80-116		
Dibenzofuran	1666.67	1582.51		95		85-110		
Diethylphthalate	1666.67	1602.76		96		82-113		
Fluorene	1666.67	1618.43		97		81-117		
4-Chlorophenyl-phenylether	1666.67	1634.04		98		79-110		
4-Nitroaniline	1666.67	1091.79		66		52-92		
4,6-Dinitro-2-methylphenol	1666.67	1486.77		89		60-113		
N-Nitrosodiphenylamine	1666.67	1636.54		98		86-112		
4-Bromophenyl-phenylether	1666.67	1741.08		104		79-117		
Hexachlorobenzene	1666.67	1758.79		106		79-115		

DHR13 0159

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate (LCSD)

SDG: DHR13
Matrix: SOLID

GC/MS Semivolatiles

Fraction: Semivolatiles by GC/MS

LCS: 020LALCS	Batch: **12020SLA026** (Sample numbers: 6526784-6526786, 6526788-6526793)							
Analyte	**Spike Added ug/kg**	**LCS Conc ug/kg**	**LCSD Conc ug/kg**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Pentachlorophenol	1666.67	1546.89		93		50-133		
Phenanthrene	1666.67	1556.93		93		83-109		
Anthracene	1666.67	1645.61		99		83-111		
Carbazole	1666.67	1544.01		93		83-111		
Di-n-butylphthalate	1666.67	1637.7		98		79-112		
Fluoranthene	1666.67	1615.6		97		80-113		
Pyrene	1666.67	1514.68		91		80-121		
Butylbenzylphthalate	1666.67	1543.24		93		77-125		
bis(2-Ethylhexyl)phthalate	1666.67	1467.54		88		75-124		
3,3'-Dichlorobenzidine	1666.67	748.56		45		17-116		
Benzo(a)anthracene	1666.67	1475.55		89		82-111		
Chrysene	1666.67	1470.74		88		81-111		
Di-n-octylphthalate	1666.67	1560.43		94		65-141		
Benzo(b)fluoranthene	1666.67	1589.63		95		61-133		
Benzo(k)fluoranthene	1666.67	1517.56		91		71-135		
Benzo(a)pyrene	1666.67	1586.81		95		63-138		
Indeno(1,2,3-cd)pyrene	1666.67	1652.73		99		64-128		
Dibenz(a,h)anthracene	1666.67	1682.91		101		67-129		
Benzo(g,h,i)perylene	1666.67	1715.92		103		63-130		

DHR13 0168

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID: ea0170.d DFTPP Injection Date: 01/05/12

Instrument ID: HP09572 DFTPP Injection Time: 12:28

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	49.0
68	Less than 2.0% of mass 69	0.05 (0.26)1
69	Mass 69 relative abundance	18.5
70	Less than 2.0% of mass 69	0.22 (1.21)1
127	40.0 - 60.0% of mass 198	45.6
197	Less than 1.0% of mass 198	0.46
198	Base peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.52
275	10.0 - 30.0% of mass 198	19.0
365	Greater than 1.00% of mass 198	2.02
441	Present, and less than mass 443	8.58
442	Greater than 40.0 % of mass 198	59.7
443	17.0 - 23.0% of mass 442	11.9 (19.9)2

1-Value is % mass 69 2-Value is % mass of 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	SSTD30	ea0171.d	01/05/12	12:43
02	STD0032 - SSTD.5	ea0172.d	01/05/12	13:07
03	STD0032 - SSTD120	ea0173.d	01/05/12	13:31
04	STD0032 - SSTD80	ea0174.d	01/05/12	13:56
05	STD0032 - SSTD50	ea0175.d	01/05/12	14:20
06	STD0032 - SSTD15	ea0176.d	01/05/12	14:45
07	STD0032 - SSTD5	ea0177.d	01/05/12	15:09
08	STD0032 - SSTD1	ea0178.d	01/05/12	15:33
09	STD0032 - SSTD0.5	ea0179.d	01/05/12	15:58
10	STD0032 - SSTD0.1	ea0180.d	01/05/12	16:22
11	STD0032 - SSTD050	ea0181.d	01/05/12	16:46
12	BASICV - SSTD050	ea0182.d	01/05/12	17:11
13	6511730	ea0184.d	01/05/12	18:42
14	6511731	ea0185.d	01/05/12	19:06
15	6504155DL	ea0186.d	01/05/12	19:30
16	6467833	ea0187.d	01/05/12	19:54
17	6467835	ea0188.d	01/05/12	20:18
18	6511730DL	ea0184a.d	01/05/12	20:42

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID: ea0170.d DFTPP Injection Date: 01/05/12

Instrument ID: HP09572 DFTPP Injection Time: 12:28

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	49.0
68	Less than 2.0% of mass 69	0.05 (0.26)1
69	Mass 69 relative abundance	18.5
70	Less than 2.0% of mass 69	0.22 (1.21)1
127	40.0 - 60.0% of mass 198	45.6
197	Less than 1.0% of mass 198	0.46
198	Base peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.52
275	10.0 - 30.0% of mass 198	19.0
365	Greater than 1.00% of mass 198	2.02
441	Present, and less than mass 443	8.58
442	Greater than 40.0 % of mass 198	59.7
443	17.0 - 23.0% of mass 442	11.9 (19.9)2

1-Value is % mass 69 2-Value is % mass of 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
19	STD0032	ea0189.d	01/05/12	21:06

FORM V SV

DHP13 6162

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID: ea0510y.d DFTPP Injection Date: 01/22/12

Instrument ID: HP09572 DFTPP Injection Time: 17:51

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	48.7
68	Less than 2.0% of mass 69	0.07 (0.36)1
69	Mass 69 relative abundance	19.1
70	Less than 2.0% of mass 69	0.13 (0.68)1
127	40.0 - 60.0% of mass 198	45.2
197	Less than 1.0% of mass 198	0.0
198	Base peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.75
275	10.0 - 30.0% of mass 198	19.9
365	Greater than 1.00% of mass 198	2.11
441	Present, and less than mass 443	8.15
442	Greater than 40.0 % of mass 198	58.1
443	17.0 - 23.0% of mass 442	11.6 (19.9)2

1-Value is % mass 69 2-Value is % mass of 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	STD0192 - SSTD30	ea0511c.d	01/22/12	18:06
02	SBLKLA020	ea0512.d	01/22/12	18:32
03	020LALCS	ea0513.d	01/22/12	18:56
04	SBLKLA021	ea0514.d	01/22/12	19:20
05	021LALCS	ea0515.d	01/22/12	19:43
06	6526969	ea0516.d	01/22/12	20:07
07	6526969MS	ea0517.d	01/22/12	20:31
08	6526969MSD	ea0518.d	01/22/12	20:55
09	6526972	ea0519.d	01/22/12	21:19
10	6526790	ea0528.d	01/23/12	00:55
11	6526791	ea0529.d	01/23/12	01:20
12	6526792	ea0530.d	01/23/12	01:43
13	6526793	ea0531.d	01/23/12	02:07
14	6526796	ea0533.d	01/23/12	02:56

DHR13 6163

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID: ea0540z.d DFTPP Injection Date: 01/23/12

Instrument ID: HP09572 DFTPP Injection Time: 14:11

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	45.5
68	Less than 2.0% of mass 69	0.21 (1.16)1
69	Mass 69 relative abundance	17.8
70	Less than 2.0% of mass 69	0.0 (0.0)1
127	40.0 - 60.0% of mass 198	44.2
197	Less than 1.0% of mass 198	0.0
198	Base peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.95
275	10.0 - 30.0% of mass 198	20.0
365	Greater than 1.00% of mass 198	1.87
441	Present, and less than mass 443	7.95
442	Greater than 40.0 % of mass 198	61.4
443	17.0 - 23.0% of mass 442	11.3 (18.5)2

1-Value is % mass 69 2-Value is % mass of 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	STD0192 - SSTD30	ea0541a.d	01/23/12	14:26
02	6526784	ea0545a.d	01/23/12	14:52
03	6526785MS	ea0546a.d	01/23/12	15:17
04	6526786MSD	ea0547a.d	01/23/12	15:41
05	6526788	ea0548a.d	01/23/12	16:05
06	6526789	ea0549a.d	01/23/12	16:30
07	6526795	ea0550a.d	01/23/12	16:54
08	6526795DL	ea0551a.d	01/23/12	17:18

DHR13 9164

6B

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09572 Calibration Date(s): 01/05/12 01/05/12

Calibration Times: 12:43 15:33

Min $\overline{RRF}$ for SPCC(#) = 0.050 Max %RSD for CCC(*) = 30%

LAB FILE ID:RRF0.5 = ea0172.d RRF1 = ea0178.d RRF5 = ea0177.d RRF15 = ea0176.d
RRF30 = ea0171.d RRF50 = ea0175.d RRF80 = ea0174.d RRF120 = ea0173.d

COMPOUND		RRF0.5	RRF1	RRF5	RRF15	RRF30	RRF50	RRF80	RRF120	$\overline{RRF}$	% RSD	CAL. METHOD	
1,4-Dioxane				0.259	0.262	0.281	0.265	0.263	0.267	0.266	3	AVG	
N-Nitrosodimethylamine				0.333	0.338	0.388	0.390	0.379	0.410	0.373	8	AVG	
Pyridine				0.687	0.666	0.753	0.707	0.656	0.724	0.699	5	AVG	
2-Picoline				0.949	0.929	0.938	0.972	0.939	0.950	0.946	2	AVG	
N-Nitrosomethylethylamine				0.435	0.383	0.418	0.423	0.410	0.399	0.411	4	AVG	
Methyl methanesulfonate				0.466	0.427	0.462	0.463	0.460	0.450	0.455	3	AVG	
N-Nitrosodiethylamine			0.443	0.493	0.511	0.536	0.518	0.525	0.533	0.508	6	AVG	
Ethyl methanesulfonate			0.648	0.609	0.545	0.616	0.591	0.603	0.615	0.604	5	AVG	
Benzaldehyde			0.678	0.625	0.506	0.493	0.578			0.000	0	AVG	
Aniline			1.338	1.423	1.383	1.525	1.558	1.567	1.544	1.477	6	AVG	
Phenol	*		1.441	1.272	1.221	1.302	1.334	1.355	1.340	1.324	5	AVG	*
bis(2-Chloroethyl)ether			0.932	0.925	0.856	0.921	0.943	0.958	0.922	0.923	3	AVG	
2-Chlorophenol			1.322	1.482	1.391	1.530	1.540	1.573	1.547	1.484	6	AVG	
1,3-Dichlorobenzene			1.670	1.541	1.415	1.604	1.605	1.632	1.592	1.580	5	AVG	
1,4-Dichlorobenzene	*		1.735	1.673	1.555	1.632	1.638	1.660	1.657	1.650	3	AVG	*
Benzyl alcohol				0.737	0.768	0.810	0.812	0.811	0.819	0.793	4	AVG	
1,2-Dichlorobenzene			1.940	1.488	1.422	1.569	1.606	1.604	1.597	1.604	10	AVG	
2-Methylphenol			0.924	0.968	0.985	1.082	1.118	1.127	1.075	1.040	8	AVG	
2,2'-oxybis(1-Chloropropane)			3.057	3.016	2.697	2.935	2.947	2.943	2.754	2.907	5	AVG	
bis(2-Chloroisopropyl)ether			3.057	3.016	2.697	2.935	2.947	2.943	2.754	2.907	5	AVG	
N-Nitrosopyrrolidine			0.529	0.600	0.577	0.608	0.647	0.627	0.637	0.604	7	AVG	
Acetophenone			1.492	1.586	1.592	1.652	1.733	1.691	1.673	1.631	5	AVG	
N-Nitroso-di-n-propylamine	#		0.618	0.604	0.556	0.584	0.593	0.565	0.565	0.583	4	AVG	#
N-Nitrosomorpholine				0.922	1.070	1.087	1.114	1.086	1.052	1.055	6	AVG	
4-Methylphenol			1.245	1.282	1.200	1.319	1.367	1.338	1.356	1.301	5	AVG	
o-Toluidine			1.791	1.767	1.663	1.889	1.921	1.894	1.950	1.839	6	AVG	
Hexachloroethane				0.496	0.442	0.477	0.498	0.496	0.481	0.482	4	AVG	
Nitrobenzene			0.176	0.165	0.165	0.176	0.181	0.175	0.175	0.173	4	AVG	
N-Nitrosopiperidine			0.147	0.157	0.140	0.152	0.152	0.156	0.156	0.151	4	AVG	
Isophorone			0.397	0.359	0.336	0.367	0.369	0.369	0.367	0.366	5	AVG	
2-Nitrophenol	*		0.184	0.177	0.170	0.191	0.202	0.198	0.203	0.189	7	AVG	*
2,4-Dimethylphenol			0.247	0.265	0.241	0.269	0.277	0.269	0.268	0.262	5	AVG	
O,O,O-triethylphosphorothioate				0.204	0.186	0.198	0.204	0.197	0.202	0.198	3	AVG	
bis(2-Chloroethoxy)methane			0.291	0.244	0.239	0.251	0.255	0.248	0.252	0.254	7	AVG	
Benzoic acid				0.213	0.219	0.221	0.236	0.234	0.231	0.226	4	AVG	
2,4-Dichlorophenol	*		0.281	0.278	0.269	0.305	0.319	0.319	0.317	0.298	7	AVG	*
1,2,4-Trichlorobenzene				0.327	0.301	0.336	0.345	0.340	0.352	0.334	5	AVG	
Naphthalene		1.033	1.015	0.981	0.928	1.009	1.032	1.004	1.014	1.002	3	AVG	
4-Chloroaniline			0.409	0.441	0.418	0.449	0.467	0.458	0.465	0.444	5	AVG	
2,6-Dichlorophenol			0.293	0.283	0.281	0.310	0.323	0.318	0.322	0.305	6	AVG	
Hexachloropropene				0.180	0.172	0.187	0.203	0.201	0.206	0.192	7	AVG	
Hexachlorobutadiene	*		0.160	0.152	0.152	0.160	0.168	0.168	0.165	0.161	4	AVG	*
Caprolactam				0.134	0.121	0.123	0.128	0.125	0.124	0.126	4	AVG	
N-Nitrosodi-n-butylamine				0.181	0.176	0.143	0.154	0.140	0.141	0.156	12	AVG	
4-Chloro-3-methylphenol	*		0.236	0.240	0.238	0.248	0.262	0.254	0.250	0.247	4	AVG	*
Safrole				0.281	0.266	0.298	0.312	0.306	0.311	0.295	6	AVG	
2-Methylnaphthalene		0.697	0.732	0.731	0.676	0.754	0.771	0.747	0.759	0.733	4	AVG	
1-Methylnaphthalene		0.614	0.710	0.693	0.638	0.713	0.736	0.701	0.722	0.691	6	AVG	
Hexachlorocyclopentadiene	#			0.175	0.195	0.236	0.248	0.249	0.257	0.227	15	AVG	#
1,2,4,5-Tetrachlorobenzene			0.534	0.448	0.443	0.498	0.507	0.505	0.510	0.492	7	AVG	
cis-Isosafrole				0.614	0.652	0.693	0.719	0.723	0.702	0.684	6	AVG	
2,4,6-Trichlorophenol	*		0.289	0.292	0.306	0.344	0.360	0.359	0.353	0.329	10	AVG	*

DHR13 8165

FORM VI SV-1

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09572 Calibration Date(s): 01/05/12 01/05/12

Calibration Times: 12:43 15:33

Min $\overline{RRF}$ for SPCC(#) = 0.050 Max %RSD for CCC(*) = 30%

LAB FILE ID:RRF0.5 = ea0172.d RRF1 = ea0178.d RRF5 = ea0177.d RRF15 = ea0176.d
RRF30 = ea0171.d RRF50 = ea0175.d RRF80 = ea0174.d RRF120 = ea0173.d

COMPOUND		RRF0.5	RRF1	RRF5	RRF15	RRF30	RRF50	RRF80	RRF120	$\overline{RRF}$	% RSD	CAL. METHOD	
2,4,5-Trichlorophenol			0.402	0.348	0.347	0.388	0.403	0.399	0.394	0.383	6	AVG	
trans-Isosafrole				0.498	0.475	0.536	0.548	0.539	0.545	0.524	6	AVG	
Isosafrole				0.444	0.423	0.477	0.488	0.479	0.485	0.466	6	AVG	
1,1'-Biphenyl			1.431	1.411	1.389	1.470	1.546	1.511	1.469	1.461	4	AVG	
2-Chloronaphthalene			1.246	1.286	1.131	1.045	1.034	1.313	1.017	1.153	11	AVG	
1-Chloronaphthalene			1.097	0.992	1.009	1.153	1.192	1.115	1.153	1.102	7	AVG	
Diphenyl ether			0.787	0.710	0.667	0.739	0.776	0.752	0.759	0.742	6	AVG	
2-Nitroaniline			0.331	0.332	0.362	0.401	0.419	0.415	0.401	0.380	10	AVG	
1,4-Naphthoquinone				0.427	0.461	0.502	0.522	0.516	0.492	0.486	7	AVG	
1,4-Dinitrobenzene				0.140	0.163	0.195	0.209	0.218	0.213	0.190	16	1STDEG	
Dimethylphthalate				1.303	1.228	1.325	1.357	1.318	1.276	1.301	3	AVG	
1,3-Dinitrobenzene				0.198	0.219	0.236	0.248	0.261	0.254	0.236	10	AVG	
2,6-Dinitrotoluene			0.226	0.266	0.275	0.319	0.316	0.330	0.319	0.293	13	AVG	
Acenaphthylene		1.394	1.639	1.506	1.450	1.596	1.641	1.611	1.612	1.556	6	AVG	
3-Nitroaniline			0.325	0.317	0.326	0.347	0.361	0.364	0.358	0.343	6	AVG	
Acenaphthene	*	1.149	1.183	1.109	1.046	1.134	1.175	1.161	1.156	1.139	4	AVG	*
2,4-Dinitrophenol	#			0.119	0.140	0.158	0.179	0.184	0.193	0.162	18	1STDEG	#
Pentachlorobenzene			0.388	0.386	0.366	0.404	0.419	0.412	0.414	0.398	5	AVG	
4-Nitrophenol	#			0.155	0.168	0.176	0.188	0.176	0.166	0.172	7	AVG	#
Dibenzofuran			1.590	1.543	1.497	1.596	1.644	1.625	1.565	1.580	3	AVG	
2,4-Dinitrotoluene				0.384	0.388	0.424	0.444	0.456	0.445	0.424	7	AVG	
1-Naphthylamine				1.212	1.178	1.277	1.337	1.305	1.305	1.269	5	AVG	
2,3,4,6-Tetrachlorophenol			0.276	0.286	0.282	0.320	0.336	0.334	0.335	0.310	9	AVG	
2-Naphthylamine				1.220	1.222	1.293	1.346	1.304	1.267	1.275	4	AVG	
Diethylphthalate				1.281	1.172	1.261	1.330	1.302	1.227	1.262	4	AVG	
Thionazin				0.170	0.146	0.153	0.158	0.162	0.151	0.157	6	AVG	
Fluorene		1.260	1.331	1.293	1.272	1.377	1.454	1.431	1.319	1.342	5	AVG	
4-Chlorophenyl-phenylether			0.642	0.651	0.638	0.674	0.730	0.701	0.654	0.670	5	AVG	
5-Nitro-o-toluidine			0.339	0.403	0.386	0.427	0.430	0.442	0.424	0.407	9	AVG	
4-Nitroaniline			0.391	0.378	0.380	0.393	0.399	0.398	0.373	0.387	3	AVG	
4,6-Dinitro-2-methylphenol				0.090	0.115	0.131	0.139	0.149	0.153	0.130	18	1STDEG	
N-Nitrosodiphenylamine (1)	*		0.607	0.624	0.582	0.654	0.646	0.627	0.635	0.625	4	AVG	*
1,2-Diphenylhydrazine			0.336	0.336	0.316	0.339	0.329	0.321	0.320	0.328	3	AVG	
Tetraethyldithiopyrophosphate				0.078	0.066	0.076	0.072	0.070	0.070	0.072	6	AVG	
1,3,5-Trinitrobenzene				0.046	0.070	0.087	0.097	0.099	0.104	0.084	26	1STDEG	
Diallate (peak 1)				0.173	0.170	0.190	0.180	0.177	0.174	0.177	4	AVG	
Phorate			0.177	0.260	0.268	0.303	0.304	0.302	0.296	0.273	17	1STDEG	
Phenacetin			0.263	0.288	0.260	0.279	0.279	0.268	0.268	0.272	4	AVG	
4-Bromophenyl-phenylether				0.167	0.163	0.182	0.188	0.181	0.191	0.179	6	AVG	
Diallate (peak 2)				0.105	0.103	0.116	0.111	0.117	0.117	0.112	6	AVG	
Hexachlorobenzene		0.148	0.163	0.161	0.141	0.165	0.163	0.159	0.167	0.158	6	AVG	
Dimethoate				0.195	0.171	0.184	0.175	0.168	0.164	0.176	6	AVG	
Diallate TRANS/CIS				0.156	0.153	0.171	0.163	0.162	0.160	0.161	4	AVG	
Atrazine			0.189	0.238	0.214	0.217	0.207			0.000	0	AVG	
Pentachlorophenol	*			0.087	0.104	0.119	0.121	0.121	0.125	0.113	13	AVG	*
Pentachloronitrobenzene				0.083	0.080	0.087	0.086	0.086	0.083	0.084	3	AVG	
4-Aminobiphenyl			0.778	0.790	0.779	0.799	0.767	0.717	0.671	0.757	6	AVG	
Pronamide			0.250	0.322	0.312	0.336	0.331	0.328	0.325	0.315	9	AVG	
Dinoseb				0.109	0.146	0.184	0.198	0.207	0.219	0.177	24	1STDEG	
Phenanthrene		1.280	1.228	1.114	1.043	1.142	1.145	1.102	1.099	1.144	7	AVG	
Anthracene		1.069	1.117	1.092	1.085	1.164	1.152	1.138	1.123	1.117	3	AVG	
Carbazole			0.987	1.002	0.993	1.072	1.074	1.027	1.030	1.027	3	AVG	

(1) Cannot be separated from Diphenylamine

DHB13##166

6C

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09572 Calibration Date(s): 01/05/12 01/05/12

Calibration Times: 12:43 15:33

Min $\overline{RRF}$ for SPCC(#) = 0.050 Max %RSD for CCC(*) = 30%

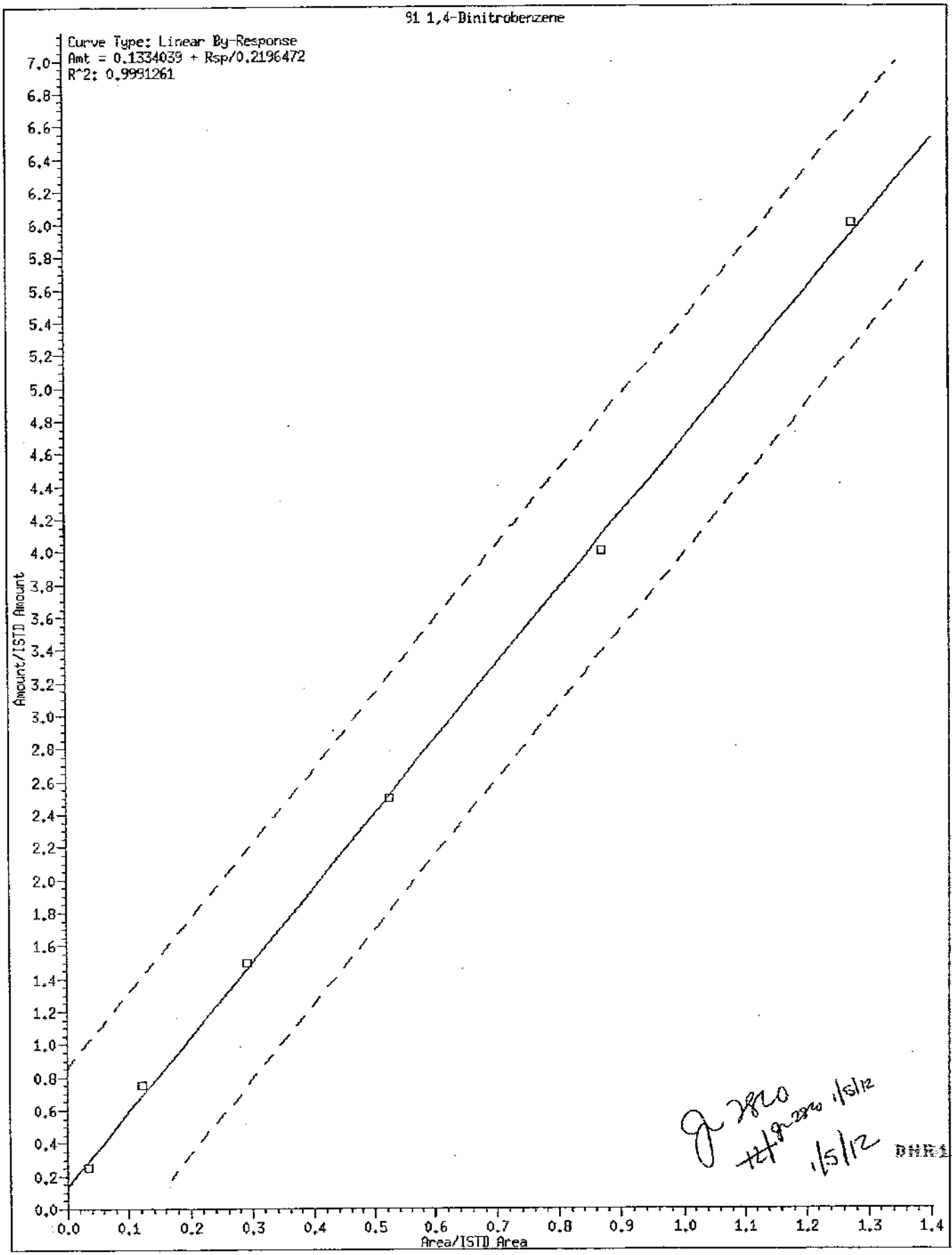
LAB FILE ID:RRF0.5 = ea0172.d RRF1 = ea0178.d RRF5 = ea0177.d RRF15 = ea0176.d
RRF30 = ea0171.d RRF50 = ea0175.d RRF80 = ea0174.d RRF120 = ea0173.d

COMPOUND		RRF0.5	RRF1	RRF5	RRF15	RRF30	RRF50	RRF80	RRF120	$\overline{RRF}$	% RSD	CAL. METHOD
Methyl parathion				0.155	0.172	0.188	0.198	0.191	0.184	0.181	9	AVG
Di-n-butylphthalate				1.145	1.130	1.234	1.217	1.177	1.156	1.177	4	AVG
Parathion				0.095	0.105	0.121	0.120	0.118	0.116	0.112	9	AVG
4-Nitroquinoline-1-oxide				0.058	0.085	0.113	0.125	0.134	0.132	0.108	28	1STDEG
Isodrin			0.127	0.122	0.116	0.125	0.124	0.126	0.125	0.124	3	AVG
Fluoranthene	*	1.254	1.147	1.155	1.139	1.207	1.205	1.192	1.170	1.183	3	AVG *
Benzidine				0.708	0.697	0.771	0.786	0.745	0.695	0.734	5	AVG
Pyrene		1.161	1.168	1.093	1.019	1.155	1.147	1.130	1.101	1.122	4	AVG
p-Dimethylaminoazobenzene			0.174	0.204	0.199	0.234	0.235	0.237	0.244	0.218	12	AVG
Chlorobenzilate			0.268	0.301	0.283	0.328	0.327	0.328	0.316	0.307	8	AVG
3,3'-Dimethylbenzidine				0.670	0.630	0.737	0.761	0.740	0.710	0.708	7	AVG
Butylbenzylphthalate				0.467	0.427	0.485	0.487	0.485	0.471	0.470	5	AVG
2-Acetylaminofluorene				0.410	0.407	0.458	0.467	0.465	0.460	0.444	6	AVG
3,3'-Dichlorobenzidine				0.308	0.310	0.356	0.363	0.363	0.345	0.341	8	AVG
4,4'-Methylenebis(2-Chloroanil				0.183	0.178	0.207	0.206	0.207	0.185	0.194	7	AVG
Benzo(a)anthracene		0.865	0.931	0.940	0.923	1.001	1.051	1.021	0.974	0.963	6	AVG
Chrysene		0.960	0.995	0.935	0.868	0.991	0.975	0.987	0.932	0.955	4	AVG
bis(2-Ethylhexyl)phthalate				0.624	0.584	0.668	0.680	0.670	0.629	0.642	6	AVG
6-Methylchrysene				0.601	0.566	0.645	0.648	0.641	0.642	0.624	5	AVG
Di-n-octylphthalate	*			1.480	1.469	1.695	1.737	1.752	1.774	1.651	8	AVG *
Dibenz(a,h)acridine				0.755	0.771	0.869	0.883	0.900	0.903	0.847	8	AVG
Dibenz(a,j)acridine				0.814	0.800	0.915	0.927	0.919	0.923	0.883	7	AVG
7,12-Dimethylbenz[a]anthracene			0.500	0.563	0.585	0.669	0.678	0.713	0.701	0.630	13	AVG
Benzo(b)fluoranthene		1.203	1.167	1.302	1.314	1.419	1.441	1.579	1.563	1.374	11	AVG
Quinoline				0.703	0.670	0.708	0.724	0.711	0.711	0.704	3	AVG
Benzo(k)fluoranthene		1.337	1.332	1.256	1.222	1.337	1.461	1.395	1.447	1.348	6	AVG
Benzo(a)pyrene	*	1.212	1.081	1.153	1.102	1.225	1.275	1.273	1.302	1.203	7	AVG *
3-Methylcholanthrene			0.571	0.578	0.577	0.650	0.656	0.665	0.678	0.625	8	AVG
NDPA as diphenylamine				0.624	0.582	0.654	0.646	0.627	0.635	0.628	4	AVG
Indeno(1,2,3-cd)pyrene		1.099	1.133	1.170	1.146	1.278	1.272	1.292	1.274	1.208	7	AVG
Dibenz(a,h)anthracene		0.916	0.878	0.933	0.901	1.031	1.026	1.040	1.053	0.972	7	AVG
Benzo(g,h,i)perylene		0.941	0.996	0.992	0.951	1.060	1.086	1.070	1.051	1.018	6	AVG
Indene				1.738	1.787	1.838	1.934	1.901	1.884	1.847	4	AVG
2-Fluorophenol				0.985	0.947	1.048	1.018	1.055	1.055	1.018	4	AVG
Phenol-d5				1.117	1.128	1.230	1.256	1.267	1.248	1.208	6	AVG
Phenol-d6				1.117	1.128	1.230	1.256	1.267	1.248	1.208	6	AVG
Nitrobenzene-d5				0.200	0.180	0.198	0.204	0.202	0.200	0.197	4	AVG
2-Fluorobiphenyl				1.146	1.056	1.191	1.215	1.184	1.191	1.164	5	AVG
2,4,6-Tribromophenol				0.117	0.113	0.131	0.139	0.136	0.136	0.129	8	AVG
Terphenyl-d14				0.605	0.571	0.674	0.665	0.679	0.667	0.643	7	AVG

Average %RSD 7

4,6-Dinitro-2-methylphenol and 4-Nitrophenol are at 10 ng/ul in the 5 standard.
Benzidine Levels in the 5,15,30,50,80,120 standards are 15,45,90,150,240,360 ng/ul, respectively.
Benzoic acid, Pentachlorophenol and 2,4-Dinitrophenol are at 15 ng/ul, 30 ng/ul,40 ng/ul in the 5,15,30 standards.

DNR13 8167


91 1,4-Dinitrobenzene
Curve Type: Linear By-Response
Amt = 0.1334039 + Rsp/0.2196472
R^2: 0.9991261
Amount/ISTD Amount
Area/ISTD Area
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2
2.4
2.6
2.8
3.0
3.2
3.4
3.6
3.8
4.0
4.2
4.4
4.6
4.8
5.0
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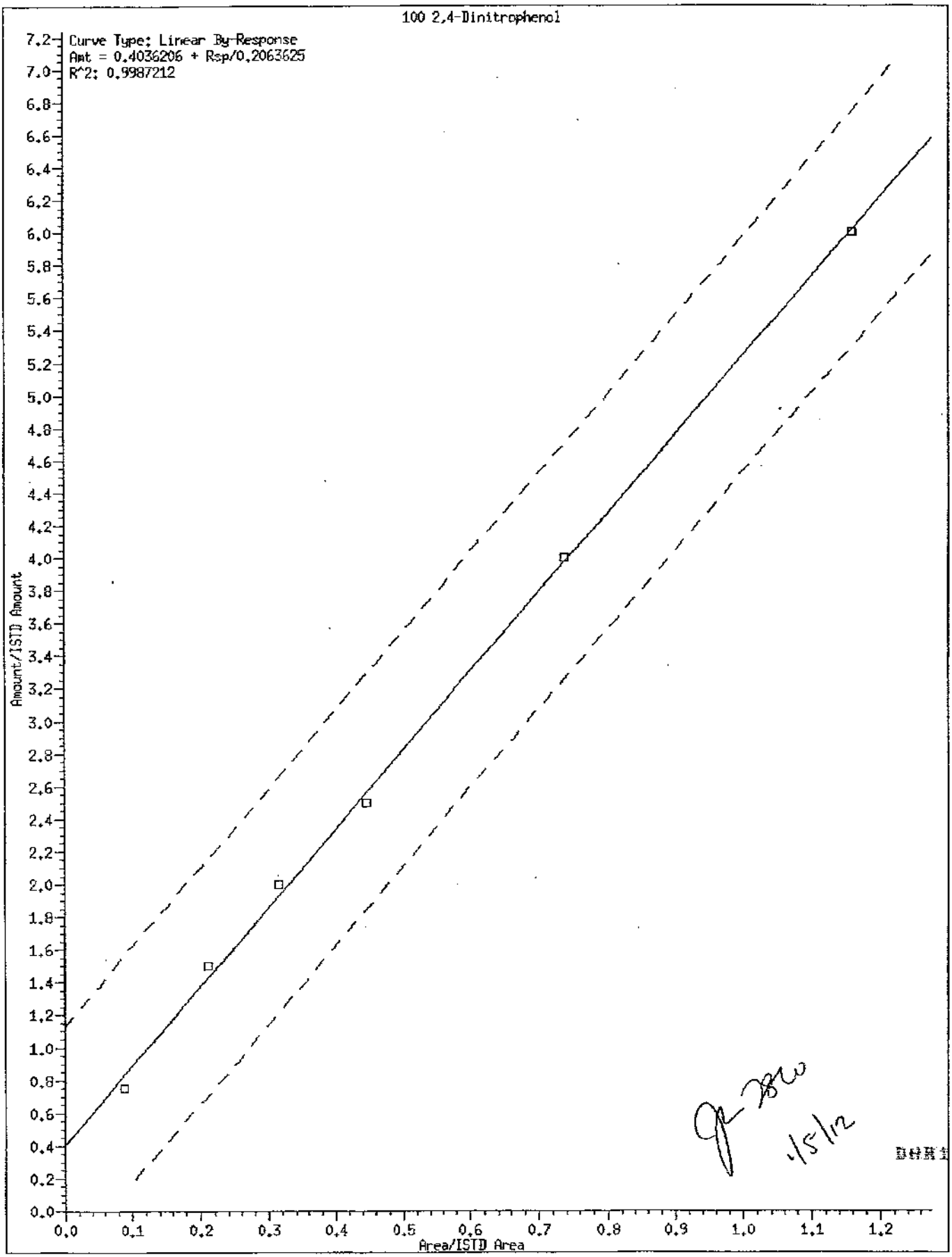
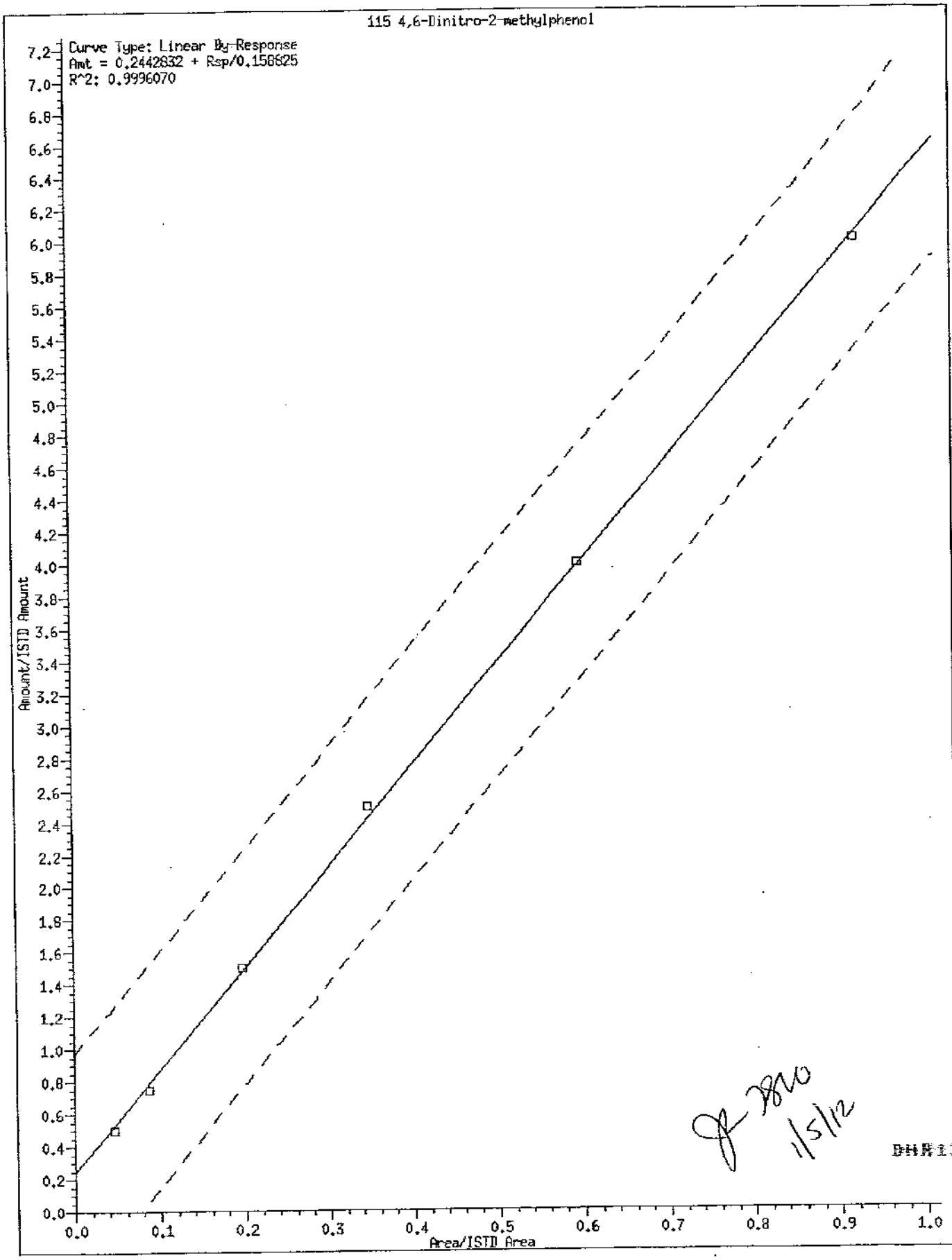
6.4
6.6
6.8
7.0

DHR13 0168



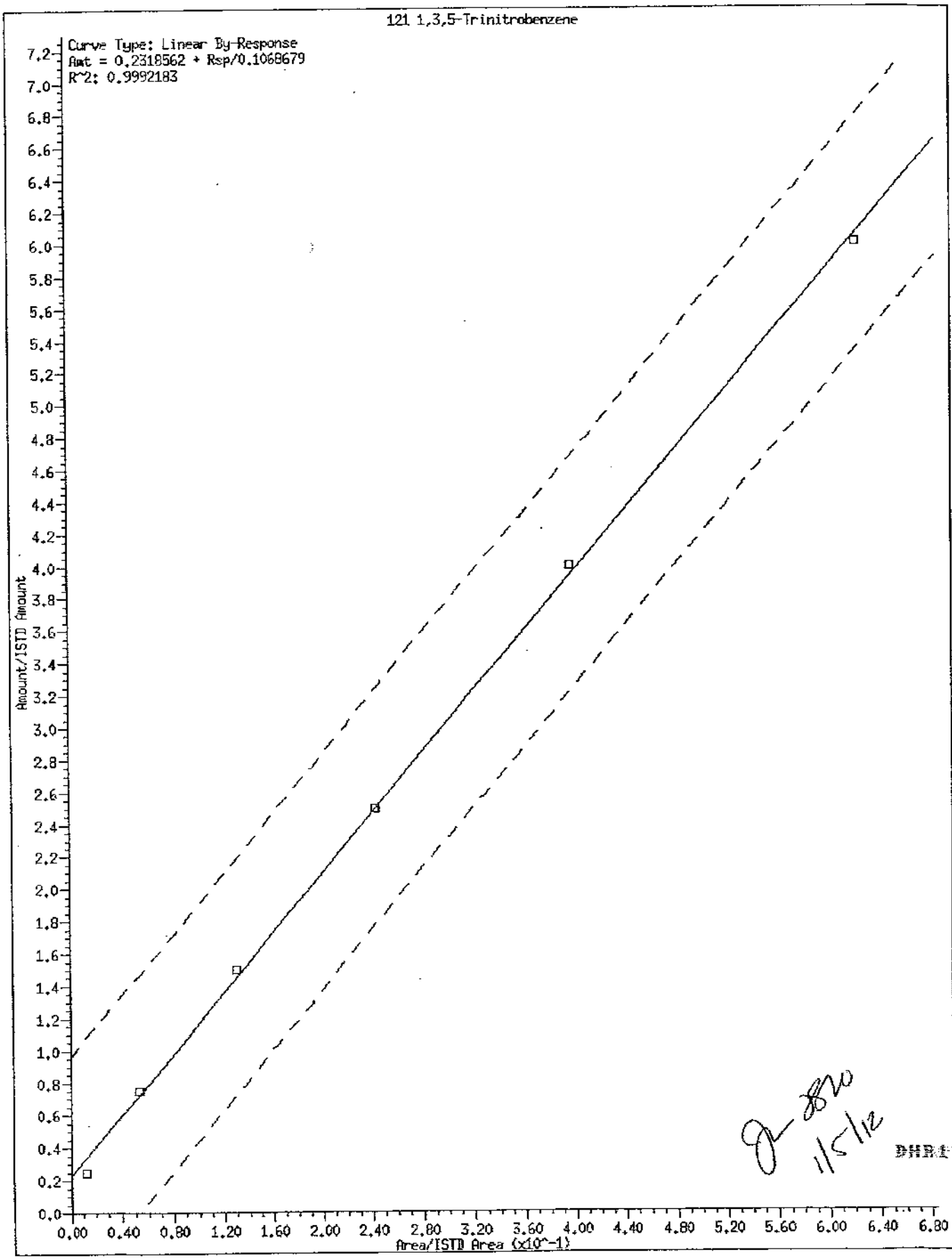
1/5/12

DAR13 0169

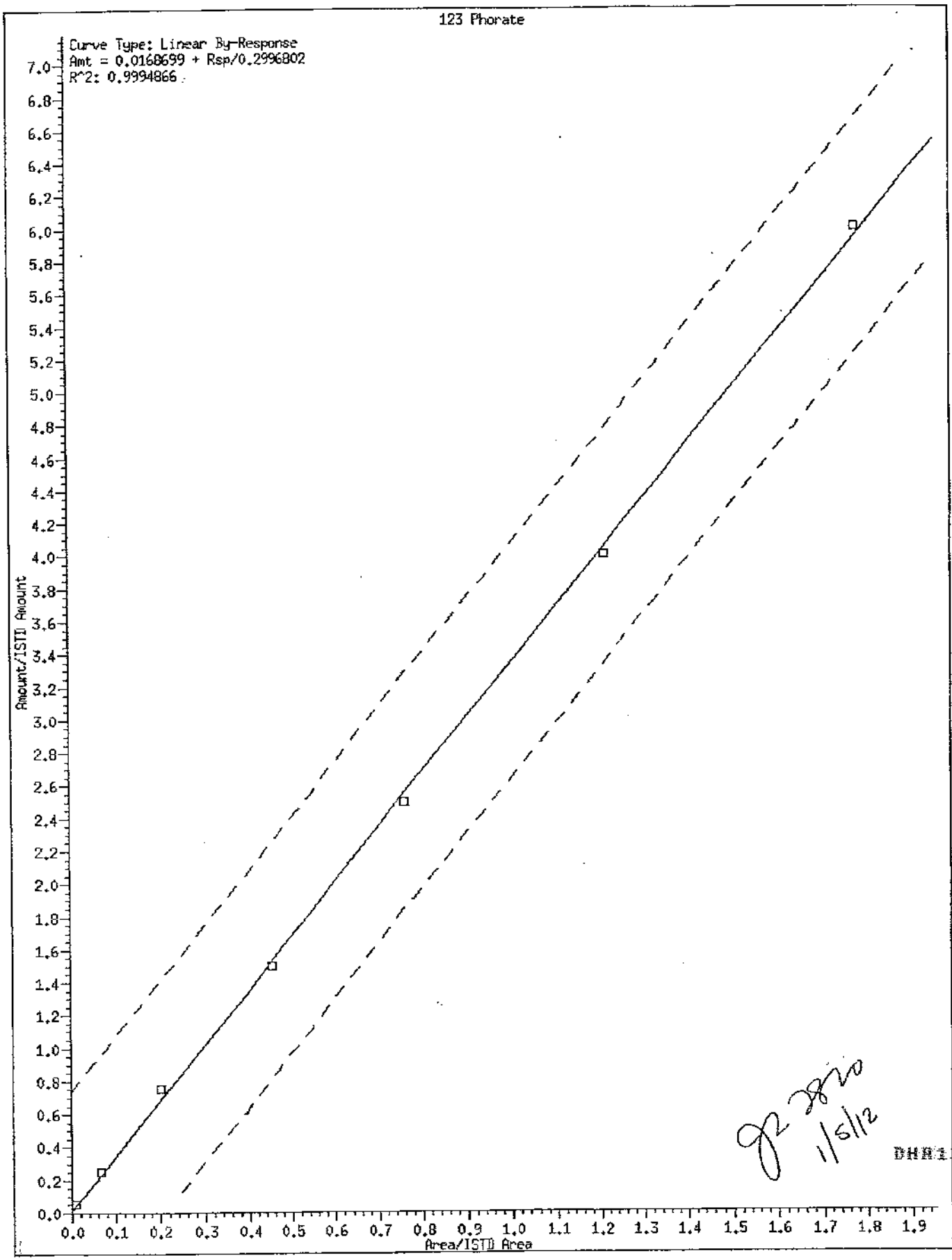


JR 2810
1/5/12

DHR13 0178

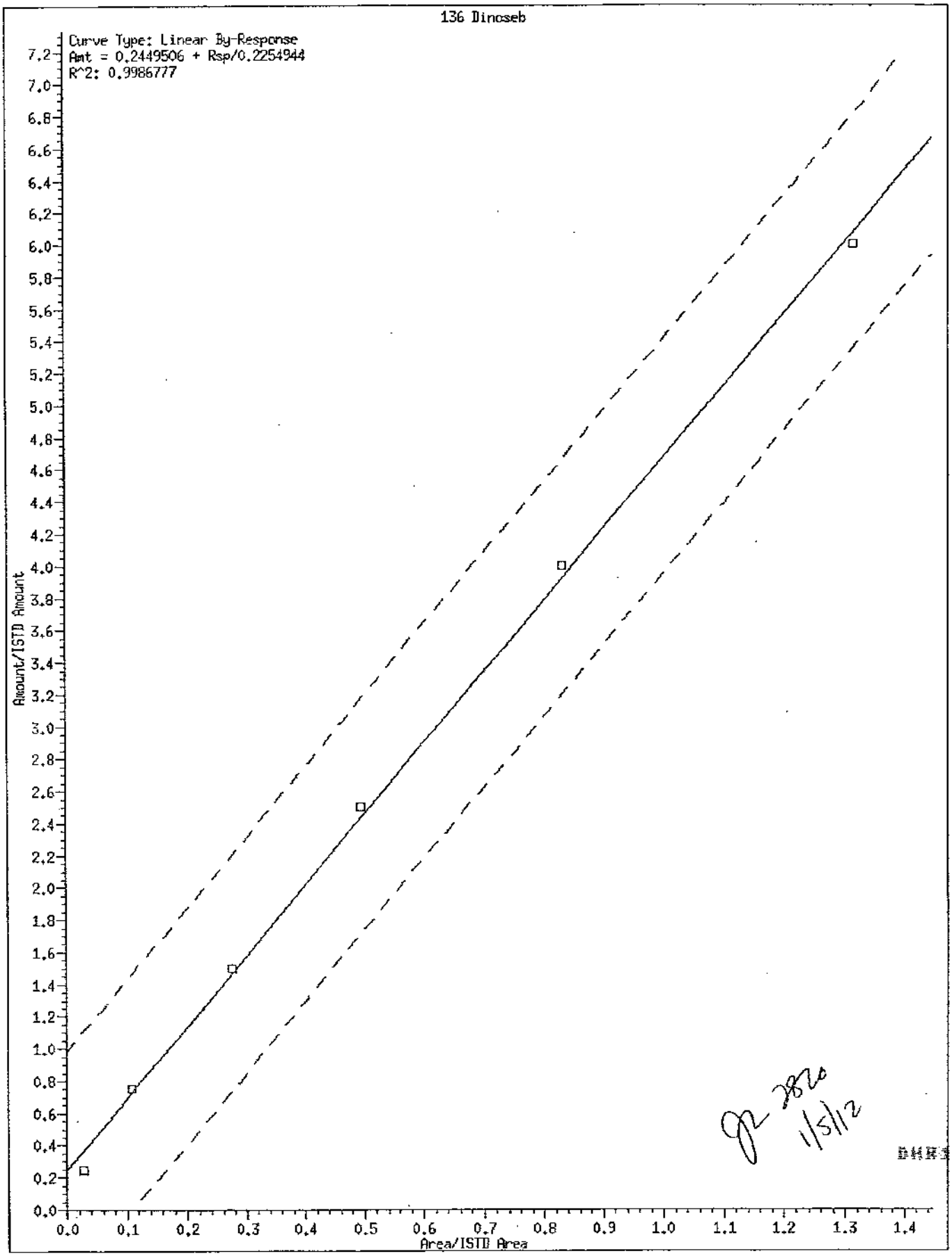

121 1,3,5-Trinitrobenzene
Curve Type: Linear By-Response
Amt = 0.2318562 + Rsp/0.1068679
R^2: 0.9992183
Amount/ISTD Amount
Area/ISTD Area (x10^-1)

DHR13 0171



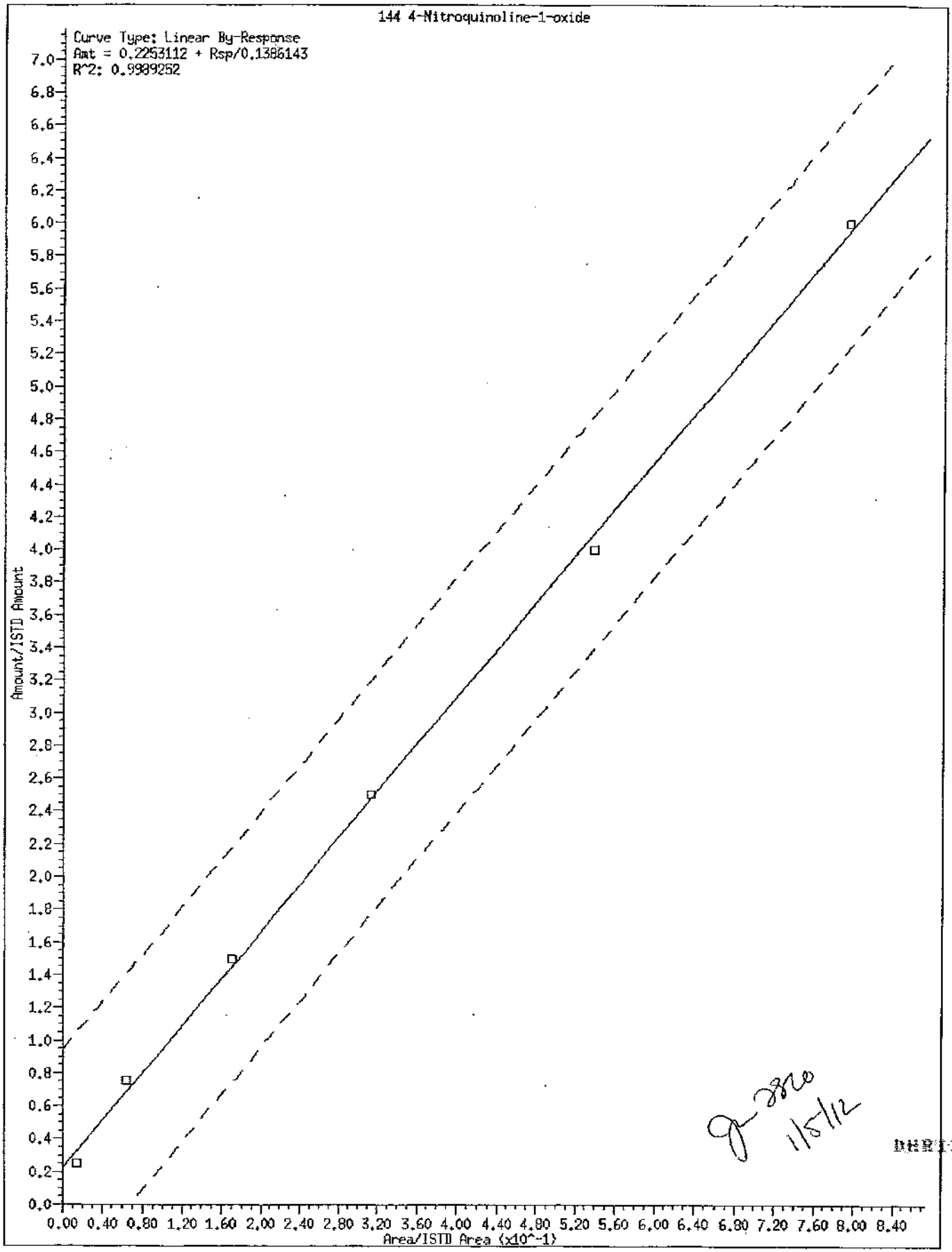
JR 2820
1/5/12

DHR13 0172



JR 2820
1/5/12

DHR13 0173


144 4-Nitroquinoline-1-oxide
Curve Type: Linear By-Response
Amt = 0.2253112 + Rsp/0.1386143
R^2: 0.9989252
Amount/ISTD Amount
Area/ISTD Area (x10^-1)

DHR13 0174

Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem/HP09572.i/12jan05c.b/ea0171.d SSTD030
/chem/HP09572.i/12jan05c.b/ea0172.d SSTD0.5
/chem/HP09572.i/12jan05c.b/ea0173.d SSTD120
/chem/HP09572.i/12jan05c.b/ea0174.d SSTD080
/chem/HP09572.i/12jan05c.b/ea0175.d SSTD050
/chem/HP09572.i/12jan05c.b/ea0176.d SSTD015
/chem/HP09572.i/12jan05c.b/ea0177.d SSTD005
/chem/HP09572.i/12jan05c.b/ea0178.d SSTD001

Area Summary

File ID:

Internal Standard Name.	ea0171.d	ea0172.d	ea0173.d	ea0174.d	ea0175.d	ea0176.d	ea0177.d	ea0178.d	Avg. Area	%RSD
1,4-Dichlorobenzene-d4	119159	91148	109677	101238	100186	103157	97146	97321	102379	8
Naphthalene-d8	556847	418737	498515	477331	466176	477751	431369	429319	469506	10
Acenaphthene-d10	371904	276088	338558	318972	314275	319992	292453	287283	314941	10
Phenanthrene-d10	667801	503573	621834	613696	596758	592045	539215	543303	584778	9
Pyrene-d10	778964	643877	699574	689044	683257	730573	667693	667311	695037	6
Perylene-d12	501677	460429	423159	425436	432184	482071	466230	438840	453753	6

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

File ID:

Internal Standard Name	ea0171.d	ea0172.d	ea0173.d	ea0174.d	ea0175.d	ea0176.d	ea0177.d	ea0178.d
1,4-Dichlorobenzene-d4	5.331	5.331	5.331	5.331	5.331	5.331	5.325	5.325
Naphthalene-d8	6.462	6.462	6.468	6.462	6.462	6.462	6.462	6.462
Acenaphthene-d10	7.946	7.940	7.946	7.946	7.946	7.945	7.940	7:940
Phenanthrene-d10	9.172	9.172	9.178	9.178	9.172	9.172	9.166	9.172
Pyrene-d10	10.338	10.339	10.344	10.345	10.339	10.338	10.339	10.338
Perylene-d12	13.042	13.037	13.048	13.043	13.043	13.036	13.037	13.031

Comments: _____

JR 7820 1/5/12

Report generated on 01/05/2012 at 17:38

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS LAB CODE: LANCAS INSTRUMENT: HP09572

Method: SW-846 8270C (LL) File ID: ea0181.d

ICV SAMPLE ID: STD0032 BATCH: 12JAN05C026 Sample Name: SSTD050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
1,4-Dioxane	50.00	49.62	-1	20	YES
N-Nitrosodimethylamine	50.00	51.00	2	20	YES
Pyridine	50.00	45.94	-8	20	YES
2-Picoline	50.00	48.61	-3	20	YES
N-Nitrosomethylethylamine	50.00	51.20	2	20	YES
Methyl methanesulfonate	50.00	48.12	-4	20	YES
2-Fluorophenol	50.00	49.72	-1	20	YES
N-Nitrosodiethylamine	50.00	56.12	12	20	YES
Ethyl methanesulfonate	50.00	53.24	6	20	YES
Aniline	50.00	52.88	6	20	YES
Phenol-d5	50.00	52.34	5	20	YES
Phenol-d6	50.00	52.34	5	20	YES
Phenol	50.00	51.96	4	20	YES
bis(2-Chloroethyl)ether	50.00	50.31	1	20	YES
2-Chlorophenol	50.00	51.89	4	20	YES
1,3-Dichlorobenzene	50.00	51.53	3	20	YES
1,4-Dichlorobenzene	50.00	52.16	4	20	YES
Benzyl alcohol	50.00	53.50	7	20	YES
1,2-Dichlorobenzene	50.00	52.30	5	20	YES
2-Methylphenol	50.00	53.81	8	20	YES
2,2'-oxybis(1-Chloropropane	50.00	50.16	0	20	YES
bis(2-Chloroisopropyl)ether	50.00	50.16	0	20	YES
N-Nitrosopyrrolidine	50.00	57.35	15	20	YES
Acetophenone	50.00	51.70	3	20	YES
N-Nitroso-di-n-propylamine	50.00	52.53	5	20	YES
N-Nitrosomorpholine	50.00	56.54	13	20	YES
4-Methylphenol	50.00	53.55	7	20	YES
o-Toluidine	50.00	53.48	7	20	YES
Hexachloroethane	50.00	48.49	-3	20	YES
Nitrobenzene-d5	50.00	48.31	-3	20	YES
Nitrobenzene	50.00	49.04	-2	20	YES
N-Nitrosopiperidine	50.00	51.48	3	20	YES
Isophorone	50.00	48.91	-2	20	YES
2-Nitrophenol	50.00	51.33	3	20	YES
2,4-Dimethylphenol	50.00	51.79	4	20	YES
O,O,O-triethylphosphorothio	50.00	51.35	3	20	YES
bis(2-Chloroethoxy)methane	50.00	49.55	-1	20	YES

NC = Could not calculate

Comments: _____

Q 2820
1/5/12

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS LAB CODE: LANCAS INSTRUMENT: HP09572

Method: SW-846 8270C (LL) File ID: ea0181.d

ICV SAMPLE ID: STD0032 BATCH: 12JAN05C026 Sample Name: SSTD050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
Benzoic acid	50.00	49.24	-2	20	YES
2,4-Dichlorophenol	50.00	53.42	7	20	YES
1,2,4-Trichlorobenzene	50.00	52.49	5	20	YES
Naphthalene	50.00	49.54	-1	20	YES
4-Chloroaniline	50.00	54.31	9	20	YES
2,6-Dichlorophenol	50.00	55.21	10	20	YES
Hexachloropropene	50.00	53.37	7	20	YES
Hexachlorobutadiene	50.00	50.80	2	20	YES
N-Nitrosodi-n-butylamine	50.00	47.87	-4	20	YES
4-Chloro-3-methylphenol	50.00	54.31	9	20	YES
Safrole	50.00	55.68	11	20	YES
2-Methylnaphthalene	50.00	52.52	5	20	YES
1-Methylnaphthalene	50.00	52.10	4	20	YES
Hexachlorocyclopentadiene	100.00	108.41	8	20	YES
1,2,4,5-Tetrachlorobenzene	50.00	51.15	2	20	YES
cis-Isosafrole	5.50	5.82	6	20	YES
2,4,6-Trichlorophenol	50.00	55.42	11	20	YES
2,4,5-Trichlorophenol	50.00	52.52	5	20	YES
2-Fluorobiphenyl	50.00	50.37	1	20	YES
trans-Isosafrole	44.50	47.84	8	20	YES
Isosafrole	50.00	53.75	8	20	YES
1,1'-Biphenyl	50.00	50.20	0	20	YES
2-Chloronaphthalene	50.00	58.29	17	20	YES
Diphenyl ether	50.00	51.53	3	20	YES
2-Nitroaniline	50.00	53.54	7	20	YES
1,4-Naphthoquinone	62.50	62.66	0	20	YES
1,4-Dinitrobenzene	50.00	49.29	-1	20	YES
Dimethylphthalate	50.00	50.54	1	20	YES
1,3-Dinitrobenzene	50.00	53.74	7	20	YES
2,6-Dinitrotoluene	50.00	52.63	5	20	YES
Acenaphthylene	50.00	53.83	8	20	YES
3-Nitroaniline	50.00	53.11	6	20	YES
Acenaphthene	50.00	50.53	1	20	YES
2,4-Dinitrophenol	50.00	53.09	6	20	YES
Pentachlorobenzene	50.00	55.32	11	20	YES
4-Nitrophenol	50.00	55.62	11	20	YES
Dibenzofuran	50.00	51.36	3	20	YES

NC = Could not calculate

Comments: _____

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS LAB CODE: LANCAS INSTRUMENT: HP09572

Method: SW-846 8270C (LL) File ID: ea0181.d

ICV SAMPLE ID: STD0032 BATCH: 12JAN05C026 Sample Name: SSTD050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
2,4-Dinitrotoluene	50.00	53.10	6	20	YES
1-Naphthylamine	100.00	106.88	7	20	YES
2,3,4,6-Tetrachlorophenol	50.00	55.19	10	20	YES
2-Naphthylamine	100.00	103.22	3	20	YES
Diethylphthalate	50.00	50.22	0	20	YES
Thionazin	50.00	54.05	8	20	YES
Fluorene	50.00	54.90	10	20	YES
4-Chlorophenyl-phenylether	50.00	53.03	6	20	YES
5-Nitro-o-toluidine	50.00	55.89	12	20	YES
4-Nitroaniline	50.00	51.55	3	20	YES
4,6-Dinitro-2-methylphenol	50.00	48.79	-2	20	YES
N-Nitrosodiphenylamine	50.00	50.82	2	20	YES
1,2-Diphenylhydrazine	50.00	49.12	-2	20	YES
2,4,6-Tribromophenol	50.00	50.65	1	20	YES
Tetraethyldithiopyrophospha	50.00	49.78	0	20	YES
1,3,5-Trinitrobenzene	50.00	50.28	1	20	YES
Diallate (peak 1)	37.50	38.10	2	20	YES
Phorate	50.00	51.25	2	20	YES
Phenacetin	50.00	50.82	2	20	YES
4-Bromophenyl-phenylether	50.00	48.35	-3	20	YES
Diallate (peak 2)	12.50	12.85	3	20	YES
Hexachlorobenzene	50.00	48.16	-4	20	YES
Dimethoate	50.00	42.24	-16	20	YES
Diallate TRANS/CIS	50.00	50.90	2	20	YES
Pentachlorophenol	50.00	57.63	15	20	YES
Pentachloronitrobenzene	50.00	53.70	7	20	YES
4-Aminobiphenyl	50.00	59.50	19	20	YES
Pronamide	50.00	52.60	5	20	YES
Dinoseb	50.00	52.56	5	20	YES
Phenanthrene	50.00	47.96	-4	20	YES
Anthracene	50.00	49.10	-2	20	YES
Carbazole	50.00	51.03	2	20	YES
Methyl parathion	50.00	47.86	-4	20	YES
Di-n-butylphthalate	50.00	48.66	-3	20	YES
Parathion	50.00	53.18	6	20	YES
4-Nitroquinoline-1-oxide	550.00	704.55	28	20	NO*
Isodrin	50.00	52.33	5	20	YES

NC = Could not calculate

Comments: _*ok per CCV requirements

DHR13 0178

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS LAB CODE: LANCAS INSTRUMENT: HP09572

Method: SW-846 8270C (LL) File ID: ea0181.d

ICV SAMPLE ID: STD0032 BATCH: 12JAN05C026 Sample Name: SSTD050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
Fluoranthene	50.00	50.24	0	20	YES
Benzidine	250.00	221.18	-12	20	YES
Pyrene	50.00	49.39	-1	20	YES
Terphenyl-d14	50.00	50.80	2	20	YES
p-Dimethylaminoazobenzene	50.00	57.70	15	20	YES
Chlorobenzilate	50.00	55.70	11	20	YES
3,3'-Dimethylbenzidine	50.00	41.94	-16	20	YES
Butylbenzylphthalate	50.00	50.48	1	20	YES
2-Acetylaminofluorene	50.00	54.52	9	20	YES
3,3'-Dichlorobenzidine	50.00	48.09	-4	20	YES
4,4'-Methylenebis(2-Chloroa	50.00	48.40	-3	20	YES
Benzo(a)anthracene	50.00	51.99	4	20	YES
Chrysene	50.00	49.77	0	20	YES
bis(2-Ethylhexyl)phthalate	50.00	51.64	3	20	YES
Di-n-octylphthalate	50.00	53.63	7	20	YES
7,12-Dimethylbenz[a]anthrac	50.00	55.56	11	20	YES
Benzo(b)fluoranthene	50.00	52.15	4	20	YES
Benzo(k)fluoranthene	50.00	50.84	2	20	YES
Benzo(a)pyrene	50.00	52.50	5	20	YES
3-Methylcholanthrene	50.00	54.95	10	20	YES
Indeno(1,2,3-cd)pyrene	50.00	52.38	5	20	YES
Dibenz(a,h)anthracene	50.00	53.20	6	20	YES
Benzo(g,h,i)perylene	50.00	51.70	3	20	YES
6-Methylchrysene	50.00	50.51	1	20	YES
Dibenz(a,h)acridine	50.00	50.91	2	20	YES
Dibenz(a,j)acridine	50.00	56.76	14	20	YES
Quinoline	50.00	48.73	-3	20	YES
Indene	50.00	52.38	5	20	YES

NC = Could not calculate

Comments: _____

DHR13 0179

7B

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09572 Calibration Date: 01/22/12 Time: 18:06

Lab File ID: ea0511c.d Init. Calib. Date(s): 01/05/12 01/05/12

Init. Calib. Times(s): 12:43 15:33

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

	COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
	1,4-Dioxane	0.266	0.279	31.470	30.0	5
	N-Nitrosodimethylamine	0.373	0.347	27.910	30.0	-7
	Pyridine	0.699	0.722	30.990	30.0	3
	2-Picoline	0.946	0.922	29.240	30.0	-3
	N-Nitrosomethylethylamine	0.411	0.397	28.920	30.0	-4
	Methyl methanesulfonate	0.455	0.430	28.360	30.0	-5
	N-Nitrosodiethylamine	0.508	0.497	29.310	30.0	-2
	Ethyl methanesulfonate	0.604	0.586	29.110	30.0	-3
	Benzaldehyde	0.000	0.431	22.440	30.0	-25
	Aniline	1.477	1.458	29.610	30.0	-1
*	Phenol	1.324	1.186	26.870	30.0	-10*
	bis(2-Chloroethyl)ether	0.923	0.907	29.510	30.0	-2
	2-Chlorophenol	1.484	1.465	29.620	30.0	-1
	1,3-Dichlorobenzene	1.580	1.637	31.080	30.0	4
*	1,4-Dichlorobenzene	1.650	1.658	30.140	30.0	0*
	Benzyl alcohol	0.793	0.689	26.070	30.0	-13
	1,2-Dichlorobenzene	1.604	1.593	29.790	30.0	-1
	2-Methylphenol	1.040	1.009	29.120	30.0	-3
	2,2'-oxybis(1-Chloropropane)	2.907	2.799	28.890	30.0	-4
	bis(2-Chloroisopropyl)ether	2.907	2.799	28.890	30.0	-4
	N-Nitrosopyrrolidine	0.604	0.563	27.970	30.0	-7
	Acetophenone	1.631	1.629	29.960	30.0	0
#	N-Nitroso-di-n-propylamine	0.583	0.514	26.450	30.0	-12#
	N-Nitrosomorpholine	1.055	0.985	28.000	30.0	-7
	4-Methylphenol	1.301	1.248	28.790	30.0	-4
	o-Toluidine	1.839	1.795	29.280	30.0	-2
	Hexachloroethane	0.482	0.474	29.540	30.0	-2
	Nitrobenzene	0.173	0.175	30.230	30.0	1
	N-Nitrosopiperidine	0.151	0.145	28.820	30.0	-4
	Isophorone	0.366	0.350	28.640	30.0	-5
*	2-Nitrophenol	0.189	0.195	30.990	30.0	3*
	2,4-Dimethylphenol	0.262	0.266	30.450	30.0	2
	O,O,O-triethylphosphorothioate	0.198	0.205	30.940	30.0	3
	bis(2-Chloroethoxy)methane	0.254	0.256	30.220	30.0	1
	Benzoic acid	0.226	0.196	34.690	40.0	-13
*	2,4-Dichlorophenol	0.298	0.309	31.110	30.0	4*

DHR13 0109

FORM VII SV-1

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09572 Calibration Date: 01/22/12 Time: 18:06

Lab File ID: ea0511c.d Init. Calib. Date(s): 01/05/12 01/05/12

Init. Calib. Times(s): 12:43 15:33

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

	COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
	1,2,4-Trichlorobenzene	0.334	0.356	32.020	30.0	7
	Naphthalene	1.002	1.003	30.040	30.0	0
	4-Chloroaniline	0.444	0.427	28.830	30.0	-4
	2,6-Dichlorophenol	0.305	0.306	30.180	30.0	1
	Hexachloropropene	0.192	0.204	31.950	30.0	6
*	Hexachlorobutadiene	0.161	0.180	33.600	30.0	12*
	Caprolactam	0.126	0.111	26.390	30.0	-12
	N-Nitrosodi-n-butylamine	0.156	0.182	35.050	30.0	17
*	4-Chloro-3-methylphenol	0.247	0.245	29.760	30.0	-1*
	Safrole	0.295	0.301	30.600	30.0	2
	2-Methylnaphthalene	0.733	0.739	30.230	30.0	1
	1-Methylnaphthalene	0.691	0.706	30.660	30.0	2
#	Hexachlorocyclopentadiene	0.227	0.234	30.930	30.0	3#
	1,2,4,5-Tetrachlorobenzene	0.492	0.516	31.470	30.0	5
	cis-Isosafrole	0.684	0.771	3.720	3.3	13
*	2,4,6-Trichlorophenol	0.329	0.346	31.570	30.0	5*
	2,4,5-Trichlorophenol	0.383	0.379	29.690	30.0	-1
	trans-Isosafrole	0.524	0.535	27.310	26.7	2
	Isosafrole	0.466	0.477	30.680	30.0	2
	1,1'-Biphenyl	1.461	1.531	31.430	30.0	5
	2-Chloronaphthalene	1.153	0.997	25.950	30.0	-14
	1-Chloronaphthalene	1.102	1.133	30.850	30.0	3
	Diphenyl ether	0.742	0.759	30.720	30.0	2
	2-Nitroaniline	0.380	0.376	29.720	30.0	-1
	1,4-Naphthoquinone	0.486	0.464	28.640	30.0	-5
	1,4-Dinitrobenzene	0.190	0.199	29.860	30.0	0
	Dimethylphthalate	1.301	1.316	30.340	30.0	1
	1,3-Dinitrobenzene	0.236	0.234	29.720	30.0	-1
	2,6-Dinitrotoluene	0.293	0.301	30.870	30.0	3
	Acenaphthylene	1.556	1.581	30.470	30.0	2
	3-Nitroaniline	0.343	0.326	28.520	30.0	-5
*	Acenaphthene	1.139	1.112	29.280	30.0	-2*
#	2,4-Dinitrophenol	0.162	0.157	38.440	40.0	-4#
	Pentachlorobenzene	0.398	0.414	31.170	30.0	4
#	4-Nitrophenol	0.172	0.147	25.730	30.0	-14#
	Dibenzofuran	1.580	1.616	30.680	30.0	2

DHR13 0181

FORM VII SV-1

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09572 Calibration Date: 01/22/12 Time: 18:06

Lab File ID: ea0511c.d Init. Calib. Date(s): 01/05/12 01/05/12

Init. Calib. Times(s): 12:43 15:33

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

	COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
	2,4-Dinitrotoluene	0.424	0.414	29.330	30.0	-2
	1-Naphthylamine	1.269	1.189	28.100	30.0	-6
	2,3,4,6-Tetrachlorophenol	0.310	0.314	30.380	30.0	1
	2-Naphthylamine	1.275	1.205	28.340	30.0	-6
	Diethylphthalate	1.262	1.249	29.690	30.0	-1
	Thionazin	0.157	0.173	33.160	30.0	11
	Fluorene	1.342	1.310	29.270	30.0	-2
	4-Chlorophenyl-phenylether	0.670	0.685	30.640	30.0	2
	5-Nitro-o-toluidine	0.407	0.392	28.860	30.0	-4
	4-Nitroaniline	0.387	0.345	26.750	30.0	-11
	4,6-Dinitro-2-methylphenol	0.130	0.141	31.460	30.0	5
*	N-Nitrosodiphenylamine (1)	0.625	0.675	32.400	30.0	8*
	1,2-Diphenylhydrazine	0.328	0.352	32.170	30.0	7
	Tetraethyldithiopyrophosphate	0.072	0.082	34.070	30.0	14
	1,3,5-Trinitrobenzene	0.084	0.081	27.250	30.0	-9
	Diallate (peak 1)	0.177	0.189	23.970	22.5	7
	Phorate	0.273	0.307	31.050	30.0	3
	Phenacetin	0.272	0.286	31.520	30.0	5
	4-Bromophenyl-phenylether	0.179	0.200	33.570	30.0	12
	Diallate (peak 2)	0.112	0.114	7.680	7.5	2
	Hexachlorobenzene	0.158	0.177	33.500	30.0	12
	Dimethoate	0.176	0.165	28.180	30.0	-6
	Diallate TRANS/CIS	0.161	0.170	31.740	30.0	6
	Atrazine	0.000	0.238	33.550	30.0	12
*	Pentachlorophenol	0.113	0.121	32.130	30.0	7*
	Pentachloronitrobenzene	0.084	0.089	31.830	30.0	6
	4-Aminobiphenyl	0.757	0.808	32.010	30.0	7
	Pronamide	0.315	0.339	32.280	30.0	8
	Dinoseb	0.177	0.202	31.770	30.0	6
	Phenanthrene	1.144	1.182	30.990	30.0	3
	Anthracene	1.117	1.168	31.360	30.0	5
	Carbazole	1.027	1.044	30.510	30.0	2
	Methyl parathion	0.181	0.189	31.250	30.0	4
	Di-n-butylphthalate	1.177	1.277	32.570	30.0	9
	Parathion	0.112	0.119	31.640	30.0	5
	4-Nitroquinoline-1-oxide	0.108	0.101	26.280	30.0	-12

(1) Cannot be Separated from Diphenylamine

DHB13 8182

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09572 Calibration Date: 01/22/12 Time: 18:06

Lab File ID: ea0511c.d Init. Calib. Date(s): 01/05/12 01/05/12

Init. Calib. Times(s): 12:43 15:33

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

	COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
	Isodrin	0.124	0.131	31.670	30.0	6
*	Fluoranthene	1.183	1.224	31.040	30.0	3*
	Benzidine	0.734	0.690	84.660	90.0	-6
	Pyrene	1.122	1.090	29.140	30.0	-3
	p-Dimethylaminoazobenzene	0.218	0.226	31.120	30.0	4
	Chlorobenzilate	0.307	0.302	29.530	30.0	-2
	3,3'-Dimethylbenzidine	0.708	0.658	27.870	30.0	-7
	Butylbenzylphthalate	0.470	0.466	29.720	30.0	-1
	2-Acetylaminofluorene	0.444	0.416	28.100	30.0	-6
	3,3'-Dichlorobenzidine	0.341	0.340	29.910	30.0	0
	4,4'-Methylenebis(2-Chloroanil	0.194	0.190	29.410	30.0	-2
	Benzo(a)anthracene	0.963	0.944	29.390	30.0	-2
	Chrysene	0.955	0.958	30.090	30.0	0
	bis(2-Ethylhexyl)phthalate	0.642	0.630	29.430	30.0	-2
	6-Methylchrysene	0.624	0.608	29.230	30.0	-3
	Dibenz(a,h)acridine	0.847	0.790	27.990	30.0	-7
*	Di-n-octylphthalate	1.651	1.525	27.700	30.0	-8*
	Dibenz(a,j)acridine	0.883	0.904	30.730	30.0	2
	7,12-Dimethylbenz[a]anthracene	0.630	0.627	29.860	30.0	0
	Quinoline	0.704	0.695	29.600	30.0	-1
	Benzo(b)fluoranthene	1.374	1.296	28.300	30.0	-6
	Benzo(k)fluoranthene	1.348	1.366	30.380	30.0	1
*	Benzo(a)pyrene	1.203	1.146	28.580	30.0	-5*
	3-Methylcholanthrene	0.625	0.601	28.860	30.0	-4
	NDPA as diphenylamine	0.628	0.675	32.240	30.0	7
	Indeno(1,2,3-cd)pyrene	1.208	1.233	30.630	30.0	2
	Dibenz(a,h)anthracene	0.972	0.982	30.310	30.0	1
	Benzo(g,h,i)perylene	1.018	1.041	30.660	30.0	2
	Indene	1.847	1.797	29.190	30.0	-3
	2-Fluorophenol	1.018	1.017	29.960	30.0	0
	Phenol-d5	1.208	1.103	27.400	30.0	-9
	Phenol-d6	1.208	1.103	27.400	30.0	-9
	Nitrobenzene-d5	0.197	0.187	28.400	30.0	-5
	2-Fluorobiphenyl	1.164	1.217	31.370	30.0	5
	2,4,6-Tribromophenol	0.129	0.130	30.270	30.0	1

DHR13 #183

7C cont

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09572 Calibration Date: 01/22/12 Time: 18:06

Lab File ID: ea0511c.d Init. Calib. Date(s): 01/05/12 01/05/12

Init. Calib. Times(s): 12:43 15:33

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
Terphenyl-d14	0.643	0.667	31.100	30.0	4
			Average %Drift:		5

DHR13 0104

Continuing Calibration
Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem/HP09572.i/12jan05c.b/ea0171.d
/chem/HP09572.i/12jan05c.b/ea0172.d
/chem/HP09572.i/12jan05c.b/ea0173.d
/chem/HP09572.i/12jan05c.b/ea0174.d
/chem/HP09572.i/12jan05c.b/ea0175.d
/chem/HP09572.i/12jan05c.b/ea0176.d **
/chem/HP09572.i/12jan05c.b/ea0177.d
/chem/HP09572.i/12jan05c.b/ea0178.d

** indicates the Mid Level Calibration Standard.

Mid Level Calibration Standard is used for comparison.

Current Continuing Calibration Standard:

/chem/HP09572.i/12jan22.b/ea0511c.d

Area Summary

File ID:

Internal Standard Name	ea0511c.d	ICAL Area	Low Limit	High Limit	In Spec
1,4-Dichlorobenzene-d4	168019	103157	51578	206314	Yes
Naphthalene-d8	754954	477751	238876	955502	Yes
Acenaphthene-d10	499055	319992	159996	639984	Yes
Phenanthrene-d10	842017	592045	296022	1184090	Yes
Pyrene-d10	1001078	730573	365286	1461146	Yes
Perylene-d12	658163	482071	241036	964142	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

RT Summary

File ID:

Internal Standard Name	ea0511c.d	ICAL RT	In Spec
1,4-Dichlorobenzene-d4	4.977	5.331	Yes
Naphthalene-d8	6.126	6.462	Yes
Acenaphthene-d10	7.597	7.945	Yes
Phenanthrene-d10	8.812	9.172	Yes
Pyrene-d10	9.966	10.338	Yes
Perylene-d12	12.449	13.036	No

due to column maintenance

A "No" indicates the retention time is greater than 30 seconds from the RT of the referenced standard.

Comments: ~~BHB13 0185~~

1/22/12

7B

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09572 Calibration Date: 01/23/12 Time: 14:26

Lab File ID: ea0541a.d Init. Calib. Date(s): 01/05/12 01/05/12

Init. Calib. Times(s): 12:43 15:33

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

	COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
	1,4-Dioxane	0.266	0.267	30.050	30.0	0
	N-Nitrosodimethylamine	0.373	0.370	29.750	30.0	-1
	Pyridine	0.699	0.620	26.600	30.0	-11
	2-Picoline	0.946	1.008	31.980	30.0	7
	N-Nitrosomethylethylamine	0.411	0.409	29.840	30.0	-1
	Methyl methanesulfonate	0.455	0.454	29.970	30.0	0
	N-Nitrosodiethylamine	0.508	0.514	30.350	30.0	1
	Ethyl methanesulfonate	0.604	0.596	29.600	30.0	-1
	Benzaldehyde	0.000	0.331	17.220	30.0	-43
	Aniline	1.477	1.475	29.960	30.0	0
*	Phenol	1.324	1.277	28.930	30.0	-4*
	bis(2-Chloroethyl)ether	0.923	0.936	30.440	30.0	1
	2-Chlorophenol	1.484	1.546	31.270	30.0	4
	1,3-Dichlorobenzene	1.580	1.632	30.990	30.0	3
*	1,4-Dichlorobenzene	1.650	1.668	30.320	30.0	1*
	Benzyl alcohol	0.793	0.782	29.580	30.0	-1
	1,2-Dichlorobenzene	1.604	1.592	29.780	30.0	-1
	2-Methylphenol	1.040	1.104	31.840	30.0	6
	2,2'-oxybis(1-Chloropropane)	2.907	2.583	26.660	30.0	-11
	bis(2-Chloroisopropyl)ether	2.907	2.585	26.680	30.0	-11
	N-Nitrosopyrrolidine	0.604	0.601	29.880	30.0	0
	Acetophenone	1.631	1.678	30.860	30.0	3
#	N-Nitroso-di-n-propylamine	0.583	0.537	27.620	30.0	-8#
	N-Nitrosomorpholine	1.055	0.993	28.230	30.0	-6
	4-Methylphenol	1.301	1.313	30.280	30.0	1
	o-Toluidine	1.839	1.842	30.050	30.0	0
	Hexachloroethane	0.482	0.480	29.920	30.0	0
	Nitrobenzene	0.173	0.167	28.850	30.0	-4
	N-Nitrosopiperidine	0.151	0.144	28.640	30.0	-5
	Isophorone	0.366	0.339	27.760	30.0	-7
*	2-Nitrophenol	0.189	0.199	31.580	30.0	5*
	2,4-Dimethylphenol	0.262	0.261	29.880	30.0	0
	O,O,O-triethylphosphorothioate	0.198	0.193	29.220	30.0	-3
	bis(2-Chloroethoxy)methane	0.254	0.244	28.790	30.0	-4
	Benzoic acid	0.226	0.214	37.880	40.0	-5
*	2,4-Dichlorophenol	0.298	0.307	30.900	30.0	3*

DHR13 0186

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09572 Calibration Date: 01/23/12 Time: 14:26

Lab File ID: ea0541a.d Init. Calib. Date(s): 01/05/12 01/05/12

Init. Calib. Times(s): 12:43 15:33

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

	COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
	1,2,4-Trichlorobenzene	0.334	0.336	30.210	30.0	1
	Naphthalene	1.002	0.972	29.090	30.0	-3
	4-Chloroaniline	0.444	0.410	27.690	30.0	-8
	2,6-Dichlorophenol	0.305	0.295	29.120	30.0	-3
	Hexachloropropene	0.192	0.188	29.400	30.0	-2
*	Hexachlorobutadiene	0.161	0.167	31.160	30.0	4*
	Caprolactam	0.126	0.121	28.910	30.0	-4
	N-Nitrosodi-n-butylamine	0.156	0.180	34.600	30.0	15
*	4-Chloro-3-methylphenol	0.247	0.260	31.590	30.0	5*
	Safrole	0.295	0.297	30.170	30.0	1
	2-Methylnaphthalene	0.733	0.727	29.750	30.0	-1
	1-Methylnaphthalene	0.691	0.663	28.800	30.0	-4
#	Hexachlorocyclopentadiene	0.227	0.224	29.670	30.0	-1#
	1,2,4,5-Tetrachlorobenzene	0.492	0.481	29.340	30.0	-2
	cis-Isosafrole	0.684	0.728	3.510	3.3	6
*	2,4,6-Trichlorophenol	0.329	0.354	32.260	30.0	8*
	2,4,5-Trichlorophenol	0.383	0.387	30.300	30.0	1
	trans-Isosafrole	0.524	0.522	26.610	26.7	0
	Isosafrole	0.466	0.464	29.900	30.0	0
	1,1'-Biphenyl	1.461	1.470	30.180	30.0	1
	2-Chloronaphthalene	1.153	0.917	23.850	30.0	-20
	1-Chloronaphthalene	1.102	1.155	31.470	30.0	5
	Diphenyl ether	0.742	0.740	29.950	30.0	0
	2-Nitroaniline	0.380	0.403	31.840	30.0	6
	1,4-Naphthoquinone	0.486	0.489	30.170	30.0	1
	1,4-Dinitrobenzene	0.190	0.214	31.900	30.0	6
	Dimethylphthalate	1.301	1.314	30.290	30.0	1
	1,3-Dinitrobenzene	0.236	0.256	32.580	30.0	9
	2,6-Dinitrotoluene	0.293	0.323	33.050	30.0	10
	Acenaphthylene	1.556	1.578	30.430	30.0	1
	3-Nitroaniline	0.343	0.359	31.430	30.0	5
*	Acenaphthene	1.139	1.121	29.530	30.0	-2*
#	2,4-Dinitrophenol	0.162	0.181	43.210	40.0	8#
	Pentachlorobenzene	0.398	0.421	31.660	30.0	6
#	4-Nitrophenol	0.172	0.173	30.260	30.0	1#
	Dibenzofuran	1.580	1.582	30.040	30.0	0

DHR13 0187

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09572 Calibration Date: 01/23/12 Time: 14:26

Lab File ID: ea0541a.d Init. Calib. Date(s): 01/05/12 01/05/12

Init. Calib. Times(s): 12:43 15:33

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

	COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
	2,4-Dinitrotoluene	0.424	0.431	30.550	30.0	2
	1-Naphthylamine	1.269	1.252	29.600	30.0	-1
	2,3,4,6-Tetrachlorophenol	0.310	0.323	31.320	30.0	4
	2-Naphthylamine	1.275	1.251	29.420	30.0	-2
	Diethylphthalate	1.262	1.280	30.430	30.0	1
	Thionazin	0.157	0.151	29.010	30.0	-3
	Fluorene	1.342	1.324	29.610	30.0	-1
	4-Chlorophenyl-phenylether	0.670	0.686	30.720	30.0	2
	5-Nitro-o-toluidine	0.407	0.415	30.560	30.0	2
	4-Nitroaniline	0.387	0.381	29.510	30.0	-2
	4,6-Dinitro-2-methylphenol	0.130	0.146	32.400	30.0	8
*	N-Nitrosodiphenylamine (1)	0.625	0.622	29.830	30.0	-1*
	1,2-Diphenylhydrazine	0.328	0.318	29.040	30.0	-3
	Tetraethyldithiopyrophosphate	0.072	0.072	29.950	30.0	0
	1,3,5-Trinitrobenzene	0.084	0.093	30.710	30.0	2
	Diallate (peak 1)	0.177	0.167	21.140	22.5	-6
	Phorate	0.273	0.287	29.070	30.0	-3
	Phenacetin	0.272	0.272	29.980	30.0	0
	4-Bromophenyl-phenylether	0.179	0.188	31.500	30.0	5
	Diallate (peak 2)	0.112	0.105	7.090	7.5	-6
	Hexachlorobenzene	0.158	0.170	32.320	30.0	8
	Dimethoate	0.176	0.171	29.140	30.0	-3
	Diallate TRANS/CIS	0.161	0.151	28.210	30.0	-6
	Atrazine	0.000	0.224	31.550	30.0	5
*	Pentachlorophenol	0.113	0.112	29.930	30.0	0*
	Pentachloronitrobenzene	0.084	0.081	28.970	30.0	-3
	4-Aminobiphenyl	0.757	0.713	28.250	30.0	-6
	Pronamide	0.315	0.325	30.930	30.0	3
	Dinoseb	0.177	0.204	32.080	30.0	7
	Phenanthrene	1.144	1.111	29.140	30.0	-3
	Anthracene	1.117	1.137	30.510	30.0	2
	Carbazole	1.027	1.051	30.730	30.0	2
	Methyl parathion	0.181	0.194	32.100	30.0	7
	Di-n-butylphthalate	1.177	1.208	30.790	30.0	3
	Parathion	0.112	0.115	30.670	30.0	2
	4-Nitroquinoline-1-oxide	0.108	0.105	27.320	30.0	-9

(1) Cannot be Separated from Diphenylamine

DHR13 #188

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09572 Calibration Date: 01/23/12 Time: 14:26

Lab File ID: ea0541a.d Init. Calib. Date(s): 01/05/12 01/05/12

Init. Calib. Times(s): 12:43 15:33

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
Isodrin	0.124	0.128	31.020	30.0	3
* Fluoranthene	1.183	1.205	30.540	30.0	2*
Benzidine	0.734	0.629	77.130	90.0	-14
Pyrene	1.122	1.080	28.890	30.0	-4
p-Dimethylaminoazobenzene	0.218	0.229	31.440	30.0	5
Chlorobenzilate	0.307	0.299	29.200	30.0	-3
3,3'-Dimethylbenzidine	0.708	0.610	25.850	30.0	-14
Butylbenzylphthalate	0.470	0.457	29.130	30.0	-3
2-Acetylaminofluorene	0.444	0.442	29.860	30.0	0
3,3'-Dichlorobenzidine	0.341	0.333	29.320	30.0	-2
4,4'-Methylenebis(2-Chloroanil	0.194	0.183	28.230	30.0	-6
Benzo(a)anthracene	0.963	0.925	28.810	30.0	-4
Chrysene	0.955	0.900	28.270	30.0	-6
bis(2-Ethylhexyl)phthalate	0.642	0.620	28.950	30.0	-3
6-Methylchrysene	0.624	0.625	30.040	30.0	0
Dibenz(a,h)acridine	0.847	0.810	28.710	30.0	-4
* Di-n-octylphthalate	1.651	1.563	28.400	30.0	-5*
Dibenz(a,j)acridine	0.883	0.816	27.710	30.0	-8
7,12-Dimethylbenz[a]anthracene	0.630	0.619	29.500	30.0	-2
Quinoline	0.704	0.707	30.130	30.0	0
Benzo(b)fluoranthene	1.374	1.205	26.320	30.0	-12
Benzo(k)fluoranthene	1.348	1.299	28.900	30.0	-4
* Benzo(a)pyrene	1.203	1.152	28.730	30.0	-4*
3-Methylcholanthrene	0.625	0.603	28.940	30.0	-4
NDPA as diphenylamine	0.628	0.622	29.690	30.0	-1
Indeno(1,2,3-cd)pyrene	1.208	1.150	28.570	30.0	-5
Dibenz(a,h)anthracene	0.972	0.926	28.570	30.0	-5
Benzo(g,h,i)perylene	1.018	0.965	28.440	30.0	-5
Indene	1.847	1.882	30.570	30.0	2
2-Fluorophenol	1.018	1.050	30.930	30.0	3
Phenol-d5	1.208	1.222	30.340	30.0	1
Phenol-d6	1.208	1.222	30.340	30.0	1
Nitrobenzene-d5	0.197	0.182	27.590	30.0	-8
2-Fluorobiphenyl	1.164	1.170	30.150	30.0	0
2,4,6-Tribromophenol	0.129	0.144	33.580	30.0	12

DHR13 8189

7C cont

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP09572 Calibration Date: 01/23/12 Time: 14:26

Lab File ID: ea0541a.d Init. Calib. Date(s): 01/05/12 01/05/12

Init. Calib. Times(s): 12:43 15:33

Min RRF for SPCC(#) = 0.050 Max %Drift for CCC(*) = 20%

COMPOUND	RRF	RRF30	ACTUAL CONC.	TRUE CONC.	% DRIFT
Terphenyl-d14	0.643	0.652	30.390	30.0	1
			Average %Drift:		4

FORM VII SV-1

DHR13 0198

Continuing Calibration
Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem/HP09572.i/12jan05c.b/ea0171.d
/chem/HP09572.i/12jan05c.b/ea0172.d
/chem/HP09572.i/12jan05c.b/ea0173.d
/chem/HP09572.i/12jan05c.b/ea0174.d
/chem/HP09572.i/12jan05c.b/ea0175.d
/chem/HP09572.i/12jan05c.b/ea0176.d **
/chem/HP09572.i/12jan05c.b/ea0177.d
/chem/HP09572.i/12jan05c.b/ea0178.d

** indicates the Mid Level Calibration Standard.

Mid Level Calibration Standard is used for comparison.

Current Continuing Calibration Standard:

/chem/HP09572.i/12jan23a.b/ea0541a.d

Area Summary

File ID:

Internal Standard Name	ea0541a.d	ICAL Area	Low Limit	High Limit	In Spec
1,4-Dichlorobenzene-d4	146559	103157	51578	206314	Yes
Naphthalene-d8	711032	477751	238876	955502	Yes
Acenaphthene-d10	475046	319992	159996	639984	Yes
Phenanthrene-d10	889238	592045	296022	1184090	Yes
Pyrene-d10	1076503	730573	365286	1461146	Yes
Perylene-d12	718939	482071	241036	964142	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

RT Summary

File ID:

Internal Standard Name	ea0541a.d	ICAL RT	In Spec
1,4-Dichlorobenzene-d4	4.905	5.331	Yes
Naphthalene-d8	6.054	6.462	Yes
Acenaphthene-d10	7.526	7.945	Yes
Phenanthrene-d10	8.740	9.172	Yes
Pyrene-d10	9.889	10.338	Yes
Perylene-d12	12.329	13.036	No

ok. Due to column maintenance

A "No" indicates the retention time is greater than 30 seconds from the RT of the referenced standard.

Comments: _____ DWR 1-3-8191

_____

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: LANCASTER LABS Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID (Standard): ea0511c.d Date Analyzed: 01/22/12

Instrument ID: HP09572 Time Analyzed: 18:06

	IS1(DCB) AREA	#	RT	#	IS2(NPT) AREA	#	RT	#	IS3(ANT) AREA	#	RT	#
	12 HOUR STD		168019		4.977		754954		6.126		499055		7.597	
	UPPER LIMIT		336038		5.477		1509908		6.626		998110		8.097	
	LOWER LIMIT		84010		4.477		377477		5.626		249528		7.097	
	LLI SAMPLE NO.													
01	SBLKLA020		154535		4.977		665776		6.120		424429		7.597	
02	020LALCS		152833		4.977		668048		6.126		423021		7.597	
03	SBLKLA021		165002		4.977		715954		6.120		464884		7.597	
04	021LALCS		161920		4.977		706503		6.126		450973		7.597	
05	6526969		170782		4.983		712908		6.132		523793		7.609	
06	6526969MS		155185		4.983		643562		6.132		474444		7.603	
07	6526969MSD		177794		4.989		723170		6.132		541038		7.615	
08	6526972		168035		4.983		699267		6.132		470125		7.603	
09	6526790		168337		4.983		729579		6.126		467981		7.603	
10	6526791		134741		4.983		594203		6.126		379217		7.603	
11	6526792		153388		4.983		661907		6.126		420730		7.603	
12	6526793		141891		4.983		632731		6.125		399005		7.603	
13	6526796		150436		4.983		646538		6.126		397762		7.603	

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT (advisory) = +100% of internal standard area
AREA LOWER LIMIT (advisory) = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard are and RT values with an asterisk
* Values outside of QC limits.

DHR13-0192

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: LANCASTER LABS Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID (Standard): ea0511c.d Date Analyzed: 01/22/12

Instrument ID: HP09572 Time Analyzed: 18:06

	IS4(PHN) AREA	#	RT	#	IS5(PYR) AREA	#	RT	#	IS6(PRY) AREA	#	RT	#
	12 HOUR STD		842017		8.812		1001078		9.966		658163		12.449	
	UPPER LIMIT		1684034		9.312		2002156		10.466		1316326		12.949	
	LOWER LIMIT		421009		8.312		500539		9.466		329082		11.949	
	LLI SAMPLE NO.													
01	SBLKLA020		768766		8.812		874020		9.966		509555		12.449	
02	020LALCS		741380		8.812		846936		9.972		524622		12.449	
03	SBLKLA021		818624		8.812		907109		9.966		538055		12.449	
04	021LALCS		784640		8.812		903493		9.966		531038		12.449	
05	6526969		697938		8.818		825337		9.972		634507		12.467	
06	6526969MS		651345		8.818		767825		9.972		610723		12.467	
07	6526969MSD		726340		8.818		859270		9.972		674987		12.473	
08	6526972		691386		8.818		820086		9.972		636008		12.467	
09	6526790		811699		8.818		972075		9.972		709300		12.461	
10	6526791		667941		8.818		810466		9.972		560386		12.461	
11	6526792		736758		8.818		896057		9.972		634501		12.461	
12	6526793		707095		8.818		859249		9.972		585521		12.461	
13	6526796		695084		8.818		838455		9.972		603424		12.467	

IS4 (PHN) = Phenanthrene-d10
IS5 (PYR) = Pyrene-d10
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT (advisory) = +100% of internal standard area
AREA LOWER LIMIT (advisory) = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard are and RT values with an asterisk
* Values outside of QC limits.

DHH13 8193

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: LANCASTER LABS Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID (Standard): ea0541a.d Date Analyzed: 01/23/12

Instrument ID: HP09572 Time Analyzed: 14:26

	IS1(DCB) AREA	#	RT	#	IS2(NPT) AREA	#	RT	#	IS3(ANT) AREA	#	RT	#
	12 HOUR STD		146559		4.905		711032		6.054		475046		7.526	
	UPPER LIMIT		293118		5.405		1422064		6.554		950092		8.026	
	LOWER LIMIT		73280		4.405		355516		5.554		237523		7.026	
	LLI SAMPLE NO.													
01	6526784		144633		4.905		673454		6.054		446114		7.526	
02	6526785MS		134541		4.905		617437		6.054		412044		7.525	
03	6526786MSD		135424		4.905		616579		6.054		411311		7.525	
04	6526788		140368		4.905		633571		6.054		416427		7.525	
05	6526789		142633		4.905		640577		6.054		419057		7.526	
06	6526795		158384		4.905		737693		6.054		479669		7.526	
07	6526795DL		159670		4.905		725204		6.054		477926		7.526	

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT (advisory) = +100% of internal standard area
AREA LOWER LIMIT (advisory) = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard are and RT values with an asterisk
* Values outside of QC limits.

DHS13 8194

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: LANCASTER LABS Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID (Standard): ea0541a.d Date Analyzed: 01/23/12

Instrument ID: HP09572 Time Analyzed: 14:26

		IS4(PHN)			IS5(PYR)			IS6(PRY)		
		AREA	#	RT	#	AREA	#	RT	#	AREA	#	RT	#
	12 HOUR STD	889238		8.740		1076503		9.889		718939		12.329	
	UPPER LIMIT	1778476		9.240		2153006		10.389		1437878		12.829	
	LOWER LIMIT	444619		8.240		538252		9.389		359470		11.829	
	LLI SAMPLE NO.												
01	6526784	790863		8.734		979939		9.889		593366		12.329	
02	6526785MS	727843		8.734		850808		9.888		484800		12.329	
03	6526786MSD	747786		8.734		867740		9.888		504868		12.329	
04	6526788	720564		8.734		824484		9.888		478129		12.329	
05	6526789	704104		8.734		823046		9.889		481346		12.329	
06	6526795	845881		8.740		951281		9.894		594562		12.335	
07	6526795DL	831213		8.734		945083		9.889		584307		12.329	

IS4 (PHN) = Phenanthrene-d10
IS5 (PYR) = Pyrene-d10
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT (advisory) = +100% of internal standard area
AREA LOWER LIMIT (advisory) = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard are and RT values with an asterisk
* Values outside of QC limits.

DN813 #195

Extraction/Distillation/Digestion Logs

Organic Extraction Batchlog Assigned to: 2894 David Schrum

Reviewed by: JRR 11/22/12 Start Date: 1/20/12 Start time: 14:10

12020SLA026

Tech 1: DS 2894 Tech 2:

Dept: 26	Prep Analysis: 10809 BNA Soil Microwave										TCL 8270 (microwave)
QC	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (mL)	pH	pH	BC	Comments
6526785MS	18S1-	30.0	SS1200326A	1.0	MS1200526A	1.0	1.0	Z	Z	34A	blacksilty mud
6526786MSD	18S1-	30.0	SS1200326A	1.0	MS1200526A	1.0	1.0	Z	Z	34A	blackfine sand
BLANKA	SBLKSA020	30.0	SS1200326A	1.0			1.0	Z	Z	2	Ngz Soy
LCSA	LCSSA020	30.0	SS1200326A	1.0	MS1200526A	1.0	1.0	Z	Z	2	↓ ↓

Solvent Used	Lot No.
1:1 Methylene Chloride/Acetone	185010512A
Methylene Chloride	116980
Sodium Sulfate	12020A

Spike Solutions: Witness: N/A

MS1200526A LCS SPIKE MIX

SS1200326A BNA SURROGATE STANDARD

	Sample #	Sample Code	Amt (g)	SS/IS Sol.	Amt (mL)	FV (mL)	pH	pH	BC	Comments	Analyses	Due Date	Prio
1	6526784BKG	18S1-	30.0	SS1200326A	1.0	1.0	Z	Z	34A	Muddy black sand	10727	01/31/2012	N
2	6526788	18S2-	30.0	SS1200326A	1.0	1.0	Z	Z	34A	black mud	10727	01/31/2012	N
3	6526789	FD2-	30.0	SS1200326A	1.0	1.0	Z	Z	34A	black muddy clay	10727	01/31/2012	N
4	6526790	17S-1	30.0	SS1200326A	1.0	1.0	Z	Z	34A	brown mud	10727	01/31/2012	N
5	6526791	18S3-	30.0	SS1200326A	1.0	1.0	Z	Z	34A	Rocky black mud	10727	01/31/2012	N
6	6526792	18S4-	30.0	SS1200326A	1.0	1.0	Z	Z	34A	brown gritty mud	10727	01/31/2012	N
7	6526793	18S5-	30.0	SS1200326A	1.0	1.0	Z	Z	34A	brown mud	10727	01/31/2012	N
8	6526795	IDW54	30.0	SS1200326A	1.0	1.0	Z	Z	34A	brown clay	10727	01/31/2012	N
9	6526796	IDW55	30.0	SS1200326A	1.0	1.0	Z	Z	34A	moist brown rocks+sand	10727	01/31/2012	N

DS 2894 1/20/12

Rack ID:		Work Station	WC10
Internal Standard	LB879108	Balance #	10879

DF = Dilution Factor FV = Final Volume

S-bath ID	6 98°C	S-bath ID	C	N-Evap	C	M-vap	C	12020SLA026

Documented temps are NIST corrected.

Lancaster Laboratories
Semi-Volatiles

Runlog for Hewlett Packard GC/MS System HP09572 **HP #05**

*** Shift #1 Analyst: msw 2109 *** Shift #2 Analyst:

Comment Code:

R = Reinjection necessary	X =	Sample sent to be reextracted
S = Surrogate problem	I =	Internal Standard problem
NU = Not used	F =	Further dilution required
MR = Meets requirements	IUO =	Internal use only
Cz = Confirms z, (z = I or X)	T =	Injected outside valid tune period

Other problems or comments are as follows:

Data Directory Path is - C:\MSDCHEM\1\DATA\12jan05c\

ALS Btl #	Laboratory File ID	Client ID	Lab Sample ID	Date injected	Time injected	Case and SDG Number or Extraction Batch Number	Dilution Factor	Comments
1	ea0170.D	DFTPP	8270DFTPP3131	05 Jan 2012	12:28			mr
2	ea0171.D	SSTD030	STD0032	05 Jan 2012	12:43			mr
9	ea0172.D	SSTD0.5	STD0032	05 Jan 2012	13:07			mr
3	ea0173.D	SSTD120	STD0032	05 Jan 2012	13:31			mr
4	ea0174.D	SSTD080	STD0032	05 Jan 2012	13:56			mr
5	ea0175.D	SSTD050	STD0032	05 Jan 2012	14:20			mr
6	ea0176.D	SSTD015	STD0032	05 Jan 2012	14:45			mr
7	ea0177.D	SSTD005	STD0032	05 Jan 2012	15:09			mr
8	ea0178.D	SSTD001	STD0032	05 Jan 2012	15:33			mr
9	ea0179.D	SSTD0.5	STD0032	05 Jan 2012	15:58			mr
10	ea0180.D	SSTD0.1	STD0032	05 Jan 2012	16:22			mr
11	ea0181.D	SSTD050	STD0032	05 Jan 2012	16:46			mr
12	ea0182.D	SSTD050	BASICV	05 Jan 2012	17:11			mr
15	ea0183.D	LCS	MS1200526A	05 Jan 2012	18:18		10	iuo
16	ea0184.D	XXXXXDL	6511730DL	05 Jan 2012	18:42	11365WAC	10	f
17	ea0185.D	XXXXXDL	6511731DL	05 Jan 2012	19:06	11365WAC	10	mr
18	ea0186.D	XXXXXDL	6504155DL	05 Jan 2012	19:30	11357SLB	10	mr
19	ea0187.D	XXXXX	6507833	05 Jan 2012	19:54	11332SLF		mr
20	ea0188.D	XXXXX	6507835	05 Jan 2012	20:18	11332SLF		mr
16	ea0184a.D	XXXXXDL	6511730DL	05 Jan 2012	20:42	11365WAC	50	mr
2	ea0189.D	SSTD030	STD0032	05 Jan 2012	21:06			mr

DHR13 0198

Lancaster Laboratories
Semi-Volatiles

Runlog for Hewlett Packard GC/MS System HP09572 **HP #05**

*** Shift #1 Analyst: msw 2109 *** Shift #2 Analyst: *

Comment Code:

R = Reinjection necessary		X =	Sample sent to be reextracted
S = Surrogate problem		I =	Internal Standard problem
NU = Not used		F =	Further dilution required
MR = Meets requirements		IUO =	Internal use only
Cz = Confirms z, (z = I or X)		T =	Injected outside valid tune period

Other problems or comments are as follows:

*

*

*

*

Data Directory Path is - C:\MSDCHEM\1\DATA\12jan22\

ALS Btl #	Laboratory File ID	Client ID	Lab Sample ID	Date injected	Time injected	Case and SDG Number or Extraction Batch Number	Dilution Factor	Comments
1	ea0510.D	DFTPP	8270DFTPP3471	22 Jan 2012	16:01			nu
1	ea0510z.D	DFTPP	8270DFTPP3471	22 Jan 2012	16:17			nu
2	ea0511.D	SSTD030	STD0192	22 Jan 2012	16:33			nu
2	ea0511a.D	SSTD030	STD0192	22 Jan 2012	17:01			nu
2	ea0511b.D	SSTD030	STD0192	22 Jan 2012	17:30			nu
1	ea0510y.D	DFTPP	8270DFTPP3471	22 Jan 2012	17:51			mr
2	ea0511c.D	SSTD030	STD0192	22 Jan 2012	18:06			mr
11	ea0512.D	SBLKLA0205	SBLKLA020	22 Jan 2012	18:32	12020SLA		mr
12	ea0513.D	020LALCS5	020LALCS	22 Jan 2012	18:56	12020SLA		mr
13	ea0514.D	SBLKLA0215	SBLKLA021	22 Jan 2012	19:20	12021SLA		mr
14	ea0515.D	021LALCS5	021LALCS	22 Jan 2012	19:43	12021SLA		me
15	ea0516.D	XXXXX	6526969	22 Jan 2012	20:07	12021SLA		mr
16	ea0517.D	XXXXXMS	6526969	22 Jan 2012	20:31	12021SLA		mr
17	ea0518.D	XXXXXMSD	6526969	22 Jan 2012	20:55	12021SLA		mr
18	ea0519.D	XXXXX	6526972	22 Jan 2012	21:19	12021SLA		mr
19	ea0520.D	XXXXX	6528020	22 Jan 2012	21:43	12021SLA		mr
20	ea0521.D	XXXXX	6528021	22 Jan 2012	22:08	12021SLA		mr
21	ea0522.D	XXXXX	6528022	22 Jan 2012	22:32	12021SLA		mr
22	ea0523.D	XXXXX	6526784	22 Jan 2012	22:56	12020SLA		mr
23	ea0524.D	XXXXXMS	6526785	22 Jan 2012	23:20	12020SLA		mr
24	ea0525.D	XXXXXMSD	6526786	22 Jan 2012	23:44	12020SLA		mr
25	ea0526.D	XXXXX	6526788	23 Jan 2012	00:08	12020SLA		mr
26	ea0527.D	XXXXX	6526789	23 Jan 2012	00:32	12020SLA		mr
27	ea0528.D	XXXXX	6526790	23 Jan 2012	00:55	12020SLA		mr
28	ea0529.D	XXXXX	6526791	23 Jan 2012	01:20	12020SLA		mr
29	ea0530.D	XXXXX	6526792	23 Jan 2012	01:43	12020SLA		mr
30	ea0531.D	XXXXX	6526793	23 Jan 2012	02:07	12020SLA		mr
31	ea0532.D	XXXXX	6526795	23 Jan 2012	02:32	12020SLA		mr
32	ea0533.D	XXXXX	6526796	23 Jan 2012	02:56	12020SLA		mr

Lancaster Laboratories
Semi-Volatiles

Runlog for Hewlett Packard GC/MS System HP09572 **HP #05**

*** Shift #1 Analyst:_____msw 2109_____*** Shift #2 Analyst:_____*

Comment Code:

R =	Reinjection necessary	X =	Sample sent to be reextracted
S =	Surrogate problem	I =	Internal Standard problem
NU =	Not used	F =	Further dilution required
MR =	Meets requirements	IUO =	Internal use only
Cz =	Confirms z, (z = I or X)	T =	Injected outside valid tune period

Other problems or comments are as follows:

_____

_____

_____

_____

Data Directory Path is - C:\MSDCHEM\1\DATA\12jan23a\

ALS Btl #	Laboratory File ID	Client ID	Lab Sample ID	Date injected	Time injected	Case and SDG Number or Extraction Batch Number	Dilution Factor	Comments
1	ea0540a.D	DFTPP	8270DFTPP3471	23 Jan 2012	13:55			nu
1	ea0540z.D	DFTPP	8270DFTPP3471	23 Jan 2012	14:11			mr
2	ea0541a.D	SSTD030	STD0192	23 Jan 2012	14:26			mr
22	ea0545a.D	XXXXX	6526784	23 Jan 2012	14:52	12020SLA	10	mr
23	ea0546a.D	XXXXXMS	6526785	23 Jan 2012	15:17	12020SLA	10	mr
24	ea0547a.D	XXXXXMSD	6526786	23 Jan 2012	15:41	12020SLA	10	mr
25	ea0548a.D	XXXXX	6526788	23 Jan 2012	16:05	12020SLA	10	mr
26	ea0549a.D	XXXXX	6526789	23 Jan 2012	16:30	12020SLA	10	mr
31	ea0550a.D	XXXXX	6526795	23 Jan 2012	16:54	12020SLA	10	f
32	ea0551a.D	XXXXXDL	6526795DL	23 Jan 2012	17:18	12020SLA	100	mr

Metals in Solid Data

DHR13 0291

Case Narrative
Conformance/Non-Conformance

DHB13 0292

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CASE NARRATIVE FOR INORGANICS

Laboratory Name: Lancaster Laboratories

SDG Number: DHR13

Date Received: 01/19/2012

Dilutions:
Refer to the analysis run logs for samples requiring dilutions.

Quality Assurance/Quality Control:
Method defined actions are taken for any failed matrix QC.
See QC Reference List for Associated Batch QC Samples.

Explanatory Notes:
The instrument detection limits (IDLs) are used for determining the U flags on the initial and continuing calibration blanks. The highest IDL is selected when multiple instruments are used for an analysis. The method detection limits (MDLs) are used for determining all other U flags.

Narrative Reviewed and Approved 02-01-12 by
(Date)

Betty L. Umble
Specialist

Sample Data

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: DHR13
Matrix: SOIL Level (low/med): LOW

Lab Sample ID: 6526784BKG
Concentration Units: MG/KG

% Solids: 70.1
Date Received: 01/19/2012

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	6.5			MS
7440-39-3	Barium	98.5			P
7440-43-9	Cadmium	0.71			P
7440-47-3	Chromium	46.5			P
7439-92-1	Lead	33.2			P
7439-97-6	Mercury	0.022	B		CV
7782-49-2	Selenium	0.96	U		P
7440-22-4	Silver	0.12	U		P

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence
NR = Not Required

CONCENTRATION QUALIFIERS:
U = Below MDL,
B = Below LOQ

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: DHR13
Matrix: SOIL Level (low/med): LOW

Lab Sample ID: 6526785MS
Concentration Units: MG/KG

% Solids: 70.1
Date Received: 01/19/2012

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	10.5			MS
7440-39-3	Barium	378			P
7440-43-9	Cadmium	7.2			P
7440-47-3	Chromium	72.8			P
7439-92-1	Lead	41.6			P
7439-97-6	Mercury	0.24			CV
7782-49-2	Selenium	20.6			P
7440-22-4	Silver	6.7			P

Comments:

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer MS = ICP Mass Spectrometry CV = Cold Vapor AF = Cold Vapor Atomic Fluorescence NR = Not Required	U = Below MDL, B = Below LOQ

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: DHR13
Matrix: SOIL Level (low/med): LOW

Lab Sample ID: 6526786MSD
Concentration Units: MG/KG

% Solids: 70.1
Date Received: 01/19/2012

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	10.4			MS
7440-39-3	Barium	392			P
7440-43-9	Cadmium	10.0			P
7440-47-3	Chromium	82.2			P
7439-92-1	Lead	54.4			P
7439-97-6	Mercury	0.26			CV
7782-49-2	Selenium	23.3			P
7440-22-4	Silver	6.9			P

Comments:

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer MS = ICP Mass Spectrometry CV = Cold Vapor AF = Cold Vapor Atomic Fluorescence NR = Not Required	U = Below MDL, B = Below LOQ

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: DHR13
Matrix: SOIL Level (low/med): LOW

Lab Sample ID: 6526787DUP % Solids: 70.1
Concentration Units: MG/KG Date Received: 01/19/2012

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	6.9			MS
7440-39-3	Barium	108			P
7440-43-9	Cadmium	0.74			P
7440-47-3	Chromium	53.6			P
7439-92-1	Lead	23.2			P
7439-97-6	Mercury	0.017	B		CV
7782-49-2	Selenium	2.1	B		P
7440-22-4	Silver	0.47	B		P

Comments:

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U = Below MDL,
MS = ICP Mass Spectrometry	B = Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	
NR = Not Required	

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: DHR13
Matrix: SOIL Level (low/med): LOW

Lab Sample ID: 6526788 % Solids: 63.7
Concentration Units: MG/KG Date Received: 01/19/2012

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	9.5			MS
7440-39-3	Barium	58.1			P
7440-43-9	Cadmium	0.19	B		P
7440-47-3	Chromium	29.0			P
7439-92-1	Lead	14.9			P
7439-97-6	Mercury	0.014	B		CV
7782-49-2	Selenium	2.9	B		P
7440-22-4	Silver	0.13	U		P

Comments:

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U = Below MDL,
MS = ICP Mass Spectrometry	B = Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	
NR = Not Required	

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: DHR13
Matrix: SOIL Level (low/med): LOW

Lab Sample ID: 6526789 % Solids: 63.8
Concentration Units: MG/KG Date Received: 01/19/2012

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	12.9			MS
7440-39-3	Barium	64.1			P
7440-43-9	Cadmium	0.27	B		P
7440-47-3	Chromium	27.8			P
7439-92-1	Lead	16.4			P
7439-97-6	Mercury	0.013	B		CV
7782-49-2	Selenium	2.7	B		P
7440-22-4	Silver	0.13	U		P

Comments:

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U = Below MDL,
MS = ICP Mass Spectrometry	B = Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	
NR = Not Required	

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: DHR13
Matrix: SOIL Level (low/med): LOW

Lab Sample ID: 6526790 % Solids: 62.6
Concentration Units: MG/KG Date Received: 01/19/2012

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	11.1			MS
7440-39-3	Barium	107			P
7440-43-9	Cadmium	0.26	B		P
7440-47-3	Chromium	27.7			P
7439-92-1	Lead	21.0			P
7439-97-6	Mercury	0.023	B		CV
7782-49-2	Selenium	2.9	B		P
7440-22-4	Silver	0.13	U		P

Comments:

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U = Below MDL,
MS = ICP Mass Spectrometry	B = Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	
NR = Not Required	

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: DHR13
Matrix: SOIL Level (low/med): LOW

Lab Sample ID: 6526791 % Solids: 85.8
Concentration Units: MG/KG Date Received: 01/19/2012

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	12.2			MS
7440-39-3	Barium	42.0			P
7440-43-9	Cadmium	0.15	B		P
7440-47-3	Chromium	15.1			P
7439-92-1	Lead	8.9			P
7439-97-6	Mercury	0.0081	U		CV
7782-49-2	Selenium	2.0	B		P
7440-22-4	Silver	0.097	U		P

Comments:

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U = Below MDL,
MS = ICP Mass Spectrometry	B = Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	
NR = Not Required	

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: DHR13
Matrix: SOIL Level (low/med): LOW

Lab Sample ID: 6526792
Concentration Units: MG/KG

% Solids: 81.6
Date Received: 01/19/2012

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	16.4			MS
7440-39-3	Barium	71.4			P
7440-43-9	Cadmium	0.082	B		P
7440-47-3	Chromium	20.8			P
7439-92-1	Lead	16.3			P
7439-97-6	Mercury	0.0083	U		CV
7782-49-2	Selenium	4.3			P
7440-22-4	Silver	0.099	U		P

Comments:

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer MS = ICP Mass Spectrometry CV = Cold Vapor AF = Cold Vapor Atomic Fluorescence NR = Not Required	U = Below MDL, B = Below LOQ

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: DHR13
Matrix: SOIL Level (low/med): LOW

Lab Sample ID: 6526793 % Solids: 65.9
Concentration Units: MG/KG Date Received: 01/19/2012

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	12.3			MS
7440-39-3	Barium	163			P
7440-43-9	Cadmium	0.18	B		P
7440-47-3	Chromium	26.6			P
7439-92-1	Lead	21.6			P
7439-97-6	Mercury	0.022	B		CV
7782-49-2	Selenium	3.5			P
7440-22-4	Silver	0.13	U		P

Comments:

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer MS = ICP Mass Spectrometry CV = Cold Vapor AF = Cold Vapor Atomic Fluorescence NR = Not Required	U = Below MDL, B = Below LOQ

Quality Control and Calibration Summary Forms

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QUALITY CONTROL REFERENCE LIST

SDG No.: DHR13
Matrix: SOIL

Analyte	Batch ID	Lab Sample ID
Barium	P02408A	6526784BKG
Cadmium		6526785MS
Chromium		6526786MSD
Lead		6526787DUP
Selenium		6526788
Silver		6526789
		6526790
		6526791
		6526792
		6526793
		P02408AB
		P02408AQ

LEGEND:

BKG = Background	B = Blank
DUP = Duplicate	Q = Laboratory Control Sample
MS = Matrix Spike	Y = Laboratory Control Sample Duplicate
MSD = Matrix Spike Duplicate	

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QUALITY CONTROL REFERENCE LIST

SDG No.: DHR13
Matrix: SOIL

Analyte	Batch ID	Lab Sample ID
Arsenic	P02408A	6526784BKG
		6526785MS
		6526786MSD
		6526787DUP
		6526788
		6526789
		6526790
		6526791
		6526792
		6526793
		P02408AB
		P02408AQ

LEGEND:

BKG = Background	B = Blank
DUP = Duplicate	Q = Laboratory Control Sample
MS = Matrix Spike	Y = Laboratory Control Sample Duplicate
MSD = Matrix Spike Duplicate	

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QUALITY CONTROL REFERENCE LIST

SDG No.: DHR13
Matrix: SOIL

Analyte	Batch ID	Lab Sample ID
Mercury	P02511A	6526784BKG
		6526785MS
		6526786MSD
		6526787DUP
		6526788
		6526789
		6526790
		6526791
		6526792
		6526793
		P02511AB
		P02511AQ

LEGEND:

BKG = Background	B = Blank
DUP = Duplicate	Q = Laboratory Control Sample
MS = Matrix Spike	Y = Laboratory Control Sample Duplicate
MSD = Matrix Spike Duplicate	

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: DHR13

Method: P
Run Name: 1202409T71
Calibration Date(s): 1/24/2012 - 01/25/2012
Concentration Units: UG/L

Analyte	Mass	Initial Calibration			Continuing Calibration					
		True	Found	%R(1)	True	Found	%R(2)	True	Found	%R(2)
Barium		600.0	591.87	98.6	500.0	501.51	100.3	500.0	497.57	99.5
Cadmium		600.0	594.82	99.1	500.0	490.65	98.1	500.0	492.39	98.5
Chromium		600.0	587.37	97.9	500.0	492.66	98.5	500.0	487.60	97.5
Lead		600.0	584.70	97.5	500.0	484.13	96.8	500.0	484.98	97.0
Selenium		600.0	592.43	98.7	500.0	485.15	97.0	500.0	491.03	98.2
Silver		600.0	590.10	98.4	500.0	490.16	98.0	500.0	486.75	97.4

(1) Control Limits: 90 - 110
(2) Control Limits: 90 - 110

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: DHR13

Method: P
Run Name: 1202409T71
Calibration Date(s): 1/24/2012 - 01/25/2012
Concentration Units: UG/L

Analyte	Mass	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(2)	True	Found	%R(2)
Barium					500.0	497.42	99.5			
Cadmium					500.0	491.33	98.3			
Chromium					500.0	486.76	97.4			
Lead					500.0	486.79	97.4			
Selenium					500.0	489.52	97.9			
Silver					500.0	483.81	96.8			

(1) Control Limits: 90 - 110
(2) Control Limits: 90 - 110

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: DHR13

Method: MS
Run Name: 1202601E03
Calibration Date(s): 01/26/2012
Concentration Units: UG/L

		Initial Calibration			Continuing Calibration					
Analyte	Mass	True	Found	%R(1)	True	Found	%R(2)	True	Found	%R(2)
Arsenic	75	500.0	505.90	101.2	250.0	254.10	101.6	250.0	238.90	95.6

(1) Control Limits: 90 - 110
(2) Control Limits: 90 - 110

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: DHR13

Method: MS
Run Name: 1202601E03
Calibration Date(s): 01/26/2012
Concentration Units: UG/L

		Initial Calibration			Continuing Calibration					
Analyte	Mass	True	Found	%R(1)	True	Found	%R(2)	True	Found	%R(2)
Arsenic	75				250.0	239.40	95.8			

(1) Control Limits: 90 - 110
(2) Control Limits: 90 - 110

DHR13 0222

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: DHR13

Method: CV
Run Name: 1202501M06
Calibration Date(s): 01/25/2012
Concentration Units: UG/L

		Initial Calibration			Continuing Calibration					
Analyte	Mass	True	Found	%R(1)	True	Found	%R(2)	True	Found	%R(2)
Mercury		2.5	2.44	97.6	1.0	0.95	95.0	1.0	0.97	97.0

(1) Control Limits: 90 - 110
(2) Control Limits: 80 - 120

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: DHR13

Method: CV
Run Name: 1202501M06
Calibration Date(s): 01/25/2012
Concentration Units: UG/L

Analyte	Mass	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(2)	True	Found	%R(2)
Mercury					1.0	0.93	93.0			

(1) Control Limits: 90 - 110
(2) Control Limits: 80 - 120

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2B
LOW LEVEL CHECK STANDARD
SDG No.: DHR13

Method: P
Run Name: 1202409T71
Calibration Date(s): 1/24/2012 - 01/25/2012
Concentration Units: UG/L

Analyte	Mass	Initial True	Initial Found	Initial %R	Final Found	Final %R
Barium		5.0	5.08	101.6	5.00	100.0
Cadmium		5.0	4.69	93.8	4.57	91.4
Chromium		15.0	14.02	93.5	13.91	92.7
Lead		15.0	17.21	114.7	14.63	97.5
Selenium		20.0	21.34	106.7	23.29	116.5
Silver		5.0	5.04	100.8	4.86	97.2

Control limits: 50% - 150%

For 6010B - Control limits apply to values up to 10 times the true value of the low level check standard. If LLC is out of specification, high, results < RL are acceptable.
For 6010C - If Low Level Check (LLC) is out of specification, results > CCV are acceptable. If LLC is out of specification, high, results < RL are acceptable.

DHR13 #225

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2B
LOW LEVEL CHECK STANDARD
SDG No.: DHR13

Method: MS
Run Name: 1202601E03
Calibration Date(s): 01/26/2012
Concentration Units: UG/L

		Initial			Final	
Analyte	Mass	True	Found	%R	Found	%R
Arsenic	75	2.0	1.81	90.5	1.80	90.0

Control limits: 50% - 150%

For 6010B - Control limits apply to values up to 10 times the true value of the low level check standard. If LLC is out of specification, high, results < RL are acceptable.
For 6010C - If Low Level Check (LLC) is out of specification, results > CCV are acceptable. If LLC is out of specification, high, results < RL are acceptable.

DHR13 0226

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2B
LOW LEVEL CHECK STANDARD
SDG No.: DHR13

Method: CV
Run Name: 1202501M06
Calibration Date(s): 01/25/2012
Concentration Units: UG/L

Analyte	Mass	Initial True	Initial Found	Initial %R	Final Found	Final %R
Mercury		0.2	0.18	90.0		

Control limits: 50% - 150%

For 6010B - Control limits apply to values up to 10 times the true value of the low level check standard. If LLC is out of specification, high, results < RL are acceptable.
For 6010C - If Low Level Check (LLC) is out of specification, results > CCV are acceptable. If LLC is out of specification, high, results < RL are acceptable.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: DHR13

Method: P
Run Name: 1202409T71
Calibration Date(s): 01/24/2012 - 01/25/2012
Preparation Blank Matrix: SOIL

Analyte	Mass	Initial Calibration Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Preparation Blank (MG/KG) Mass		C	Lab Sample ID
Barium		0.33	U	0.33	U	0.33	U	0.33	U		0.018	U	P02408AB
Cadmium		0.33	U	0.33	U	0.33	U	0.33	U		0.020	U	P02408AB
Chromium		2.5	U	2.5	U	2.5	U	2.5	U		0.140	U	P02408AB
Lead		2.5	U	2.5	U	2.5	U	2.5	U		0.220	U	P02408AB
Selenium		3.6	B	3.4	U	3.4	U	5.7	B		0.670	U	P02408AB
Silver		0.83	U	0.83	U	0.83	U	0.83	U		0.081	U	P02408AB

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U= Below IDL/MDL
MS = ICP Mass Spectrometry	B= Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	

DHR13 0228

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QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: DHR13

Method: MS
Run Name: 1202601E03
Calibration Date(s): 01/26/2012
Preparation Blank Matrix: SOIL

		Initial Calibration Blank (ug/L)		Continuing Calibration Blank (ug/L)						Preparation Blank (MG/KG)			
Analyte	Mass		C	1	C	2	C	3	C	Mass		C	Lab Sample ID
Arsenic	75	0.40	U	0.40	U	0.40	U	0.40	U	75	0.078	U	P02408AB

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U= Below IDL/MDL
MS = ICP Mass Spectrometry	B= Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	

DHR13 0229

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QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: DHR13

Method: CV
Run Name: 1202501M06
Calibration Date(s): 01/25/2012
Preparation Blank Matrix: SOIL

		Initial Calibration Blank (ug/L)		Continuing Calibration Blank (ug/L)						Preparation Blank (MG/KG)			
Analyte	Mass		C	1	C	2	C	3	C	Mass		C	Lab Sample ID
Mercury		-0.051	B	0.039	U	-0.044	B	-0.051	B		-0.009	B	P02511AB

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U= Below IDL/MDL
MS = ICP Mass Spectrometry	B= Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	

DHR13 0236

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QUALITY ASSURANCE SUMMARY
FORM 4A
ICP-AES INTERFERENCE CHECK SAMPLE
SDG No.: DHR13

Instrument ID: 16315
Run Name: 1202409T71
Concentration Units: ug/L

Analyte	True		Initial Found				Final Found			
	Sol. A	Sol. AB	Sol. A	%R	Sol. AB	%R	Sol. A	%R	Sol. AB	%R
Aluminum	500000	500000	482408	96.5	508503.4	101.7	483968	96.8	510802.8	102.2
Barium	0	500	0		512.8	102.6	0		515.6	103.1
Cadmium	0	1000	0		946.6	94.7	0		956.0	95.6
Calcium	500000	500000	479046	95.8	505214.7	101.0	483644	96.7	512410.7	102.5
Chromium	0	500	3		479.0	95.8	4		481.2	96.2
Iron	200000	200000	192532	96.3	203488.9	101.7	193165	96.6	204910.4	102.5
Lead	0	50	1		48.8	97.6	-1		53.4	106.8
Magnesium	500000	500000	471916	94.4	496327.3	99.3	469847	94.0	494833.6	99.0
Selenium	0	50	3		53.2	106.4	-3		54.0	108.0
Silver	0	200	-1		210.0	105.0	-1		211.4	105.7

Control Limits: All Metals 80%-120%

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QUALITY ASSURANCE SUMMARY
FORM 4B
ICP-MS INTERFERENCE CHECK SAMPLE
SDG No.: DHR13

Instrument ID: 11332
Run Name: 1202601E03
Concentration Units: ug/L

Analyte	Mass	True		Found			
		Sol. A	Sol. AB	Sol. A	%R	Sol. AB	%R
Aluminum	27	10000	10000	10540	105.4	10240.0	102.4
Arsenic	75	0	20	0		19.7	98.5
Calcium	44	10000	10000	10060	100.6	10060.0	100.6
Carbon	13	20000	20000	NA		NA	
Chloride	37	100000	100000	NA		NA	
Iron	57	10000	10000	10250	102.5	10110.0	101.1
Magnesium	24	10000	10000	10380	103.8	10320.0	103.2
Molybdenum	98	200	200	206	103.0	203.1	101.6
Phosphorus	31	10000	10000	NA		NA	
Potassium	39	10000	10000	10470	104.7	10340.0	103.4
Sodium	23	10000	10000	10290	102.9	10140.0	101.4
Sulfur	34	10000	10000	NA		NA	
Titanium	47	200	200	223	111.5	213.5	106.8

Control Limits: All Metals 80%-120%

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QUALITY ASSURANCE SUMMARY
FORM 4B
ICP-MS INTERFERENCE CHECK SAMPLE
SDG No.: DHR13

Instrument ID: 11332
Run Name: 1202601E03
Concentration Units: ug/L

Analyte	Mass	True		Found			
		Sol. A	Sol. AB	Sol. A	%R	Sol. AB	%R
Aluminum	27	10000	10000	9641	96.4	9581.0	95.8
Arsenic	75	0	20	0		19.2	96.0
Calcium	44	10000	10000	9479	94.8	9447.0	94.5
Carbon	13	20000	20000	NA		NA	
Chloride	37	100000	100000	NA		NA	
Iron	57	10000	10000	9579	95.8	9437.0	94.4
Magnesium	24	10000	10000	9456	94.6	9368.0	93.7
Molybdenum	98	200	200	192	96.0	188.5	94.3
Phosphorus	31	10000	10000	NA		NA	
Potassium	39	10000	10000	10100	101.0	10070.0	100.7
Sodium	23	10000	10000	9283	92.8	9142.0	91.4
Sulfur	34	10000	10000	NA		NA	
Titanium	47	200	200	206	103.0	196.2	98.1

Control Limits: All Metals 80%-120%

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QUALITY ASSURANCE SUMMARY
FORM 5A(MS/MSD)
MATRIX SPIKE/MATRIX SPIKE DUPLICATE
SDG No.: DHR13
Matrix: SOIL Level (low/med): LOW

Background Lab Sample ID: 6526784BKG Matrix Spike Lab Sample ID: 6526785MS Matrix Spike Duplicate Lab Sample ID: 6526786MSD
% Solids for Sample: 70.1
Batch Id(s): P02408A, P02511A

		BKG Sample		MS Sample		MSD Sample		MS Spike	MSD Spike		MS		MSD				Control Limit		
Analyte	Mass	Result	C	Result	C	Result	C	Added	Added	Units	%R	Q	%R	Q	RPD	Q	%R	RPD	M
Arsenic	75	6.4660		10.4960		10.4193		2.7433	2.7971	MG/KG	147	N	141	N	1		75 - 125	20	MS
Barium		98.5014		377.5088		391.8967		274.3334	279.7125	MG/KG	102		105		4		75 - 125	20	P
Cadmium		0.7090		7.2397		10.0081		6.8583	6.9928	MG/KG	95		133	N	32	*	75 - 125	20	P
Chromium		46.5460		72.8177		82.1697		27.4333	27.9712	MG/KG	96		127	N	12		75 - 125	20	P
Lead		33.1662		41.5725		54.3985		20.5750	20.9784	MG/KG	41	N	101		27	*	75 - 125	20	P
Mercury		0.0221	B	0.2441		0.2553		0.2199	0.2342	MG/KG	101		100		4		80 - 120	20	CV
Selenium		0.9604	U	20.6024		23.2861		20.5750	20.9784	MG/KG	100		111		12		75 - 125	20	P
Silver		0.1172	U	6.6924		6.8697		6.8583	6.9928	MG/KG	98		98		3		75 - 125	20	P

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

CONCENTRATION QUALIFIERS:
U= Below MDL, B= Below LOQ
FLAGS:
N = Matrix Spike OOS, * = Duplicate OOS

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QUALITY ASSURANCE SUMMARY
FORM 5B
POST DIGEST SPIKE SAMPLE RECOVERY
SDG No.: DHR13
Matrix: SOIL Level (low/med): LOW

Background Lab Sample ID: 6526784BKG
Post Digest Spike Lab Sample ID: 6526784A
Batch ID(s): P02408A
Concentration Units: UG/L

Analyte	Mass	Control Limit %R	Spiked Sample Result (SSR)	C	Sample Result (SR)	C	Spike Added (SA)	%R	Q	M
Arsenic	75		25.7700		22.8900		4.0000	72		MS
Cadmium			52.8000		5.0200		50.0000	96		P
Chromium			517.6000		329.5500		200.0000	94		P
Lead			711.3600		234.8200		500.0000	95		P

Comments:

DHR13 8235

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U= Below MDL
MS = ICP Mass Spectrometry	B= Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	

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QUALITY ASSURANCE SUMMARY
FORM 6
DUPLICATES
SDG No.: DHR13
Matrix: SOIL Level (low/med): LOW

Background Lab Sample ID: 6526784BKG
% Solids for Duplicate: 65.8
Batch ID(s): P02408A, P02511A
Concentration Units: MG/KG

Duplicate Lab Sample ID: 6526787DUP
% Solids for Sample: 70.1

Analyte	Mass	Control Limit	Samples (S)	C	Duplicate (D)	C	RPD	Q	M
Arsenic	75		6.4660		6.9349		7		MS
Barium			98.5014		107.9377		9		P
Cadmium		0.7	0.7090		0.7401		4		P
Chromium			46.5460		53.5501		14		P
Lead			33.1662		23.2370		35	*	P
Mercury			0.0221	B	0.0172	B	25		CV
Selenium			0.9604	U	2.0706	B	200		P
Silver			-0.2542	B	0.4675	B	677	*	P

NOTE: An asterisk (*) in column "Q" indicates poor duplicate precision (RPD > 20% OR |(S) - (D)| > LOQ for values < 5x LOQ).
The data are considered to be valid because the laboratory control sample is within the control limits. See the Laboratory Control Sample.

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U= Below MDL
MS = ICP Mass Spectrometry	B= Below LOQ
CV = Cold Vapor	FLAGS:
AF = Cold Vapor Atomic Fluorescence	* = Duplicate Out of Spec

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QUALITY ASSURANCE SUMMARY
FORM 7
LABORATORY CONTROL SAMPLE
SDG No.: DHR13
Matrix: SOIL

Analyte	Mass	Lab Sample ID	Units	True	Found	C	Control Limits (%)	%R	M	In Spec
Arsenic	75	P02408AQ	UG/L	1000.0	1085.2		80 - 120	109	MS	Yes
Barium		P02408AQ	UG/L	200000.0	201175.0		80 - 120	101	P	Yes
Cadmium		P02408AQ	UG/L	5000.0	5024.0		80 - 120	100	P	Yes
Chromium		P02408AQ	UG/L	20000.0	20060.0		80 - 120	100	P	Yes
Lead		P02408AQ	UG/L	15000.0	15309.0		80 - 120	102	P	Yes
Mercury		P02511AQ	UG/L	100.0	99.0		80 - 120	99	CV	Yes
Selenium		P02408AQ	UG/L	15000.0	14974.0		80 - 120	100	P	Yes
Silver		P02408AQ	UG/L	5000.0	4961.0		80 - 120	99	P	Yes

DHR13 0237

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

CONCENTRATION QUALIFIERS:
U= Below MDL
B= Below LOQ

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QUALITY ASSURANCE SUMMARY
FORM 9
SERIAL DILUTIONS
SDG No.: DHR13
Matrix: SOIL Level (low/med): LOW

Background Lab Sample ID: 6526784BKG Serial Dilution Lab Sample ID: 6526784L
Batch ID(s): P02408A
Concentration Units: UG/L

Analyte	Mass	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Diff.	Q	M
Arsenic	75	22.8900		22.0850		4		MS
Barium		697.4000		699.5500		0		P
Cadmium		5.0200		3.4000	B	32		P
Chromium		329.5500		335.6000		2		P
Lead		234.8200		246.4500		5		P
Selenium		6.8000	U	34.0000	U			P
Silver		0.8300	U	4.1500	U			P

NOTE: An E in column Q indicates the presence of a chemical or physical interference in the matrix when the % difference is greater than 10%. This applies only when (I) is greater than or equal to 50x MDL for ICP, 100x MDL for ICP-MS (6020), 50x MDL for ICP-MS (200.8), or 25x MDL for GFAA.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry

CONCENTRATION QUALIFIERS:
U= Below MDL
B= Below LOQ
FLAGS:
E = Matrix Effects exist as proven by Serial Dilution or Spiked Dilution

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QUALITY ASSURANCE SUMMARY
FORM 10
INSTRUMENT DETECTION LIMITS (QUARTERLY)
SDG No.: DHR13

Method: P
Instrument ID: 16315
Date: 01/2012

Analyte	Wavelength (nm)	Background	IDL (UG/L)
Barium	455.40		0.33
Cadmium	226.50		0.33
Chromium	267.72		2.5
Lead	220.35		2.5
Selenium	196.09		3.4
Silver	328.06		0.83

Comments:

DHR13 8239

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 10
INSTRUMENT DETECTION LIMITS (QUARTERLY)
SDG No.: DHR13

Method: MS
Instrument ID: 11332
Date: 01/2012

Analyte	MASS (amu)	Background	IDL (UG/L)
Arsenic	75		0.40

Comments:

DHR13 #249

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 10
INSTRUMENT DETECTION LIMITS (QUARTERLY)
SDG No.: DHR13

Method: CV
Instrument ID: 62347
Date: 01/2012

Analyte	Wavelength (nm)	Background	IDL (UG/L)
Mercury	254.00		0.039

Comments:

DHR13-6241

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 10 MDL
METHOD DETECTION LIMITS (ANNUALLY)
SDG No.: DHR13
Matrix: SOIL

Method: P
Date: 06/2011

Analyte	Wavelength (nm)	Background	LOQ (UG/L)	MDL (UG/L)
Barium	455.40		5.0	0.18
Cadmium	226.50		5.0	0.20
Chromium	267.72		15.0	1.4
Lead	220.35		15.0	2.2
Selenium	196.09		20.0	6.8
Silver	328.06		5.0	0.83

The LOQ/MDL must be adjusted for % Solids and Sample Weight for samples reporting in mg/kg and ug/L.

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 10 MDL
METHOD DETECTION LIMITS (ANNUALLY)
SDG No.: DHR13
Matrix: SOIL

Method: MS
Date: 06/2011

Analyte	Mass	Background	LOQ (UG/L)	MDL (UG/L)
Arsenic	75		2.0	0.40

The LOQ/MDL must be adjusted for % Solids and Sample Weight for samples reporting in mg/kg and ug/L.

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 10 MDL
METHOD DETECTION LIMITS (ANNUALLY)
SDG No.: DHR13
Matrix: SOIL

Method: CV
Date: 06/2011

Analyte	Wavelength (nm)	Background	LOQ (UG/L)	MDL (UG/L)
Mercury	254.00		0.60	0.043

The LOQ/MDL must be adjusted for % Solids and Sample Weight for samples reporting in mg/kg and ug/L.

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 11
ICP INTERELEMENT CORRECTION FACTORS (BIANNUALLY)
SDG No.: DHR13

Instrument ID: 16315
Date: 11/2011

Analyte	Wavelength (nm)	Interelement Correction Factor for: AL	CA	FE	MG	CO
Cadmium	226.50	0.0000000	0.0000000	0.0000500	0.0000000	0.0000000
Lead	220.35	0.0002190	0.0000000	0.0000210	0.0000000	0.0000600
Selenium	196.09	0.0000000	0.0000000	-0.0000150	0.0000000	-0.0000160
Silver	328.06	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000

Comments:

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QUALITY ASSURANCE SUMMARY
FORM 11
ICP INTERELEMENT CORRECTION FACTORS (BIANNUALLY)
SDG No.: DHR13

Instrument ID: 16315
Date: 11/2011

Analyte	Wavelength (nm)	Interelement Correction Factor for: CR	CU	MN	MO	NI
Cadmium	226.50	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Lead	220.35	0.0000500	0.0002420	0.0000000	-0.0004460	0.0001140
Selenium	196.09	-0.0001630	0.0000000	0.0004790	0.0000000	0.0000000
Silver	328.06	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000

Comments:

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QUALITY ASSURANCE SUMMARY
FORM 11
ICP INTERELEMENT CORRECTION FACTORS (BIANNUALLY)
SDG No.: DHR13

Instrument ID: 16315
Date: 11/2011

Analyte	Wavelength (nm)	Interelement Correction Factor for: SI	ZR	--	--	--
Cadmium	226.50	0.0000000	0.0000000			
Lead	220.35	0.0001020	0.0000000			
Selenium	196.09	0.0000000	0.0000000			
Silver	328.06	0.0000000	0.0068660			

Comments:

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QUALITY ASSURANCE SUMMARY
FORM 12
LINEAR RANGES
SDG No.: DHR13

Method: P
Instrument ID: 16315
Date: 01/2012

Analyte	Wavelength (nm)	Integration Time (Sec.)	Concentration (ug/L)
Barium	455.4	10.00	5000.0
Cadmium	226.5	10.00	20000.0
Chromium	267.72	10.00	20000.0
Lead	220.35	10.00	10000.0
Selenium	196.09	10.00	10000.0
Silver	328.06	10.00	10000.0

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

DHR13-8248

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QUALITY ASSURANCE SUMMARY
FORM 13
PREPARATION LOG
SDG No.: DHR13

Method: P
Batch ID: P02408A

Lab Sample ID	Date	Sample Weight(gram)	Final Volume(ml)
6526788	01/24/2012	1.00	100
6526789	01/24/2012	1.02	100
6526790	01/24/2012	1.02	100
6526791	01/24/2012	1.00	100
6526792	01/24/2012	1.03	100
6526793	01/24/2012	1.00	100
6526784BKG	01/24/2012	1.01	100
6526787DUP	01/24/2012	1.01	100
6526786MSD	01/24/2012	1.02	100
6526785MS	01/24/2012	1.04	100
P02408AB	01/24/2012	1.02	100
P02408AQ	01/24/2012	1.00	100

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

LEGEND:
BKG = Background
DUP = Duplicate
MS = Matrix Spike
MSD = Matrix Spike Duplicate
B = Blank
Q = Laboratory Control Sample
Y = Laboratory Control Sample Duplicate

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QUALITY ASSURANCE SUMMARY
FORM 13
PREPARATION LOG
SDG No.: DHR13

Method: MS
Batch ID: P02408A

Lab Sample ID	Date	Sample Weight(gram)	Final Volume(ml)
6526788	01/24/2012	1.00	100
6526789	01/24/2012	1.02	100
6526790	01/24/2012	1.02	100
6526791	01/24/2012	1.00	100
6526792	01/24/2012	1.03	100
6526793	01/24/2012	1.00	100
6526784BKG	01/24/2012	1.01	100
6526787DUP	01/24/2012	1.01	100
6526786MSD	01/24/2012	1.02	100
6526785MS	01/24/2012	1.04	100
P02408AB	01/24/2012	1.02	100
P02408AQ	01/24/2012	1.00	100

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

LEGEND:
BKG = Background
DUP = Duplicate
MS = Matrix Spike
MSD = Matrix Spike Duplicate
B = Blank
Q = Laboratory Control Sample
Y = Laboratory Control Sample Duplicate

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QUALITY ASSURANCE SUMMARY
FORM 13
PREPARATION LOG
SDG No.: DHR13

Method: CV
Batch ID: P02511A

Lab Sample ID	Date	Sample Weight(gram)	Final Volume(ml)
6526788	01/25/2012	0.65	100
6526789	01/25/2012	0.63	100
6526790	01/25/2012	0.61	100
6526791	01/25/2012	0.62	100
6526792	01/25/2012	0.63	100
6526793	01/25/2012	0.64	100
6526784BKG	01/25/2012	0.63	100
6526787DUP	01/25/2012	0.62	100
6526786MSD	01/25/2012	0.61	100
6526785MS	01/25/2012	0.65	100
P02511AB	01/25/2012	0.63	100
P02511AQ	01/25/2012	1.00	100

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

LEGEND:
BKG = Background
DUP = Duplicate
MS = Matrix Spike
MSD = Matrix Spike Duplicate
B = Blank
Q = Laboratory Control Sample
Y = Laboratory Control Sample Duplicate

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QUALITY ASSURANCE SUMMARY
FORM 14
ANALYSIS RUN LOG
SDG No.: DHR13

Method: P
Instrument ID: 16315
Run Name: 1202409T71

Run Start Date: 01/24/2012
Run End Date: 01/25/2012

Lab Sample ID	D/F	Time	AS	BA	CD	CR	PB	HG	SE	AG
			Analytes							
S0	1.00	22:52		X	X	X	X		X	X
S	1.00	22:56								
S	1.00	22:59		X	X		X		X	X
S	1.00	23:03				X				
ICV	1.00	23:07		X	X	X	X		X	X
ICB	1.00	23:10		X	X	X	X		X	X
LLC	1.00	23:14		X	X	X	X		X	X
ICSA	1.00	23:18		X	X	X	X		X	X
ICSAB	1.00	23:21		X	X	X	X		X	X
CCV	1.00	23:25		X	X	X	X		X	X
CCB	1.00	23:28		X	X	X	X		X	X
P02408AB	1.00	23:32		X	X	X	X		X	X
P02408AQ	1.00	23:36		X	X	X	X		X	X
6526784BKG	1.00	23:39		X	X	X	X		X	X
6526784A	1.00	23:43			X	X	X			
6526787DUP	1.00	23:47		X	X	X	X		X	X
6526785MS	1.00	23:50		X	X	X	X		X	X
6526786MSD	1.00	23:54		X	X	X	X		X	X
6526784L	5.00	23:58		X	X	X	X		X	X
ZZZZZZ	1.00	00:02								
6526788	1.00	00:05		X	X	X	X		X	X
CCV	1.00	00:09		X	X	X	X		X	X
CCB	1.00	00:12		X	X	X	X		X	X
6526789	1.00	00:16		X	X	X	X		X	X
6526790	1.00	00:19		X	X	X	X		X	X
6526791	1.00	00:23		X	X	X	X		X	X
6526792	1.00	00:27		X	X	X	X		X	X
6526793	1.00	00:30		X	X	X	X		X	X
ZZZZZZ	1.00	00:34								
ZZZZZZ	1.00	00:38								
LLC	1.00	00:41		X	X	X	X		X	X
ICSA	1.00	00:45		X	X	X	X		X	X
ICSAB	1.00	00:49		X	X	X	X		X	X
CCV	1.00	00:52		X	X	X	X		X	X
CCB	1.00	00:56		X	X	X	X		X	X

METHODS:
- P = ICP Atomic Emission Spectrometer
- MS = ICP Mass Spectrometry
- CV = Cold Vapor
- AF = Cold Vapor Atomic Fluorescence

LEGEND:
- BKG = Background
- DUP = Duplicate
- MS = Matrix Spike
- MSD = Matrix Spike Duplicate
- A = Post Digest Spike
- L = Serial Dilution
- B = Blank
- Q = Laboratory Control Sample
- Y = Laboratory Control Sample Duplicate

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QUALITY ASSURANCE SUMMARY
FORM 14
ANALYSIS RUN LOG
SDG No.: DHR13

Method: MS
Instrument ID: 11332
Run Name: 1202601E03

Run Start Date: 01/26/2012
Run End Date: 01/26/2012

Lab Sample ID	D/F	Time	Analytes																															
			AS	BA	CD	CR	PB	HG	SE	AG																									
S0	1.00	10:38	X																															
S	1.00	10:39	X																															
LRS	1.00	10:41	X																															
CCS	1.00	10:43	X																															
ICV	1.00	10:45	X																															
ICB	1.00	10:47	X																															
LLC	1.00	10:48	X																															
ICSA	1.00	10:50	X																															
ICSAB	1.00	10:52	X																															
CCV	1.00	10:54	X																															
CCB	1.00	10:56	X																															
P02408AB	2.00	10:57	X																															
P02408AQ	2.00	10:59	X																															
6526784BKG	2.00	11:01	X																															
6526784A	2.00	11:03	X																															
6526787DUP	2.00	11:05	X																															
6526785MS	2.00	11:07	X																															
6526786MSD	2.00	11:08	X																															
6526784L	10.00	11:10	X																															
ZZZZZZ	2.00	11:12																																
6526788	2.00	11:14	X																															
CCV	1.00	11:16	X																															
CCB	1.00	11:17	X																															
6526789	2.00	11:19	X																															
6526790	2.00	11:21	X																															
6526791	2.00	11:23	X																															
6526792	2.00	11:25	X																															
6526793	2.00	11:26	X																															
ZZZZZZ	2.00	11:28																																
ZZZZZZ	2.00	11:30																																
LLC	1.00	11:32	X																															
ICSA	1.00	11:34	X																															
ICSAB	1.00	11:36	X																															
CCV	1.00	11:37	X																															
CCB	1.00	11:39	X																															

METHODS:
- P = ICP Atomic Emission Spectrometer
- MS = ICP Mass Spectrometry
- CV = Cold Vapor
- AF = Cold Vapor Atomic Fluorescence

LEGEND:
- BKG = Background
- DUP = Duplicate
- MS = Matrix Spike
- MSD = Matrix Spike Duplicate
- A = Post Digest Spike
- L = Serial Dilution
- B = Blank
- Q = Laboratory Control Sample
- Y = Laboratory Control Sample Duplicate

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QUALITY ASSURANCE SUMMARY
FORM 14
ANALYSIS RUN LOG
SDG No.: DHR13

Method: CV
Instrument ID: 62347
Run Name: 1202501M06

Run Start Date: 01/25/2012
Run End Date: 01/25/2012

Lab Sample ID	D/F	Time	Analytes																													
			AS	BA	CD	CR	PB	HG	SE	AG																						
S0	1.00	18:42						X																								
S0.2	1.00	18:43						X																								
S0.5	1.00	18:44						X																								
S1.0	1.00	18:46						X																								
S2.5	1.00	18:47						X																								
S5.0	1.00	18:48						X																								
ICV	1.00	18:49						X																								
ICB	1.00	18:51						X																								
CRA	1.00	18:52						X																								
CCV	1.00	18:53						X																								
CCB	1.00	18:54						X																								
P02511AB	1.00	18:55						X																								
P02511AQ	1.00	18:56						X																								
ZZZZZZ	1.00	18:57																														
6526784BKG	1.00	18:59						X																								
6526787DUP	1.00	19:00						X																								
6526785MS	1.00	19:01						X																								
6526786MSD	1.00	19:02						X																								
6526788	1.00	19:03						X																								
6526789	1.00	19:05						X																								
6526790	1.00	19:06						X																								
CCV	1.00	19:07						X																								
CCB	1.00	19:08						X																								
6526791	1.00	19:09						X																								
6526792	1.00	19:11						X																								
6526793	1.00	19:12						X																								
ZZZZZZ	1.00	19:13																														
ZZZZZZ	1.00	19:14																														
6526784A	1.00	19:16																														
CCV	1.00	19:17						X																								
CCB	1.00	19:18						X																								

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

LEGEND:
BKG = Background
DUP = Duplicate
MS = Matrix Spike
MSD = Matrix Spike Duplicate
A = Post Digest Spike
L = Serial Dilution
B = Blank
Q = Laboratory Control Sample
Y = Laboratory Control Sample Duplicate

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QUALITY ASSURANCE SUMMARY
FORM 15
ICP-MS TUNE
SDG No.: DHR13
Matrix: SOIL

Instrument ID: 11332
Date: 01/26/2012

Analyte	Mass	Avg. Measured Mass (amu)	Avg. Peak Width at 5% Peak Height (amu)	%RSD
Lithium	6.000	6.00	0.60	2.4
Magnesium	24.000	24.00	0.60	0.8
Rhodium	103.000	103.05	0.65	1.1
Indium	115.000	115.05	0.65	1.0
Cerium	140.000	140.05	0.65	1.0
Lead	208.000	208.00	0.65	0.5
Uranium	238.000	238.00	0.65	1.2

Comments:

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QUALITY ASSURANCE SUMMARY
FORM 16
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
SDG No.: DHR13

Instrument ID: 11332 Start Date: 01/26/2012
Run Name: 1202601E03 End Date: 01/26/2012

Lab Sample ID	Time	Internal Standards %RI For: Element IN-1-115	Q	Element	Q	Element	Q	Element	Q	Element	Q	Element	Q	Element	Q
S0	10:38	100													
S	10:39	96													
LRS	10:41	93													
CCS	10:43	101													
ICV	10:45	101													
ICB	10:47	101													
LLC	10:48	101													
ICSA	10:50	98													
ICSAB	10:52	101													
CCV	10:54	106													
CCB	10:56	105													
P02408AB	10:57	101													
P02408AQ	10:59	102													
6526784BKG	11:01	92													
6526784A	11:03	93													
6526787DUP	11:05	91													
6526785MS	11:07	88													
6526786MSD	11:08	90													
6526784L	11:10	99													
ZZZZZZ	11:12														
6526788	11:14	102													
CCV	11:16	109													
CCB	11:17	112													
6526789	11:19	104													
6526790	11:21	100													
6526791	11:23	94													
6526792	11:25	101													
6526793	11:26	108													
ZZZZZZ	11:28														
ZZZZZZ	11:30														
LLC	11:32	118													
ICSA	11:34	117													
ICSAB	11:36	116													
CCV	11:37	118													
CCB	11:39	118													

LEGEND:
- BKG = Background
- DUP = Duplicate
- MS = Matrix Spike
- MSD = Matrix Spike Duplicate
- A = Post Digest Spike
- L = Serial Dilution
- B = Blank
- Q = Laboratory Control Sample
- Y = Laboratory Control Sample Duplicate

FLAG:
- R = Internal Standard Relative Intensity OOS

INTERNAL STANDARD ELEMENTS
- BE = Beryllium
- BI = Bismuth
- GE = Germanium
- HO = Holmium
- IN = Indium
- LI = Lithium
- SC = Scandium
- TB = Terbium
- Y = Yttrium

DHR13 0256

Moisture Data

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CLIENT: CH2M Hill, Inc.
SDG: DHR13

MOISTURE

SAMPLE NUMBERS:

Sample #	Sample Code
6526784	18S1-BKG
6526785	18S1-MS
6526786	18S1-MSD
6526787	18S1-DUP
6526788	18S2-
6526789	FD2--FD
6526790	17S-1
6526791	18S3-
6526792	18S4-
6526793	18S5-

Laboratory Compliance Quality Control

Analysis Name	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 12025820002B	Sample number(s): 6526784-6526793				
Moisture	100		99-101		
Moisture	100		99-101		
Moisture Duplicate	100		99-101		

Sample Matrix Quality Control

Analysis Name	BKG Conc	DUP Conc	RPD	RPD Max
Batch number: 12025820002B	Sample number(s): 6526784-6526793			
Moisture	29.9	34.2	13	15
Moisture Duplicate	29.9	34.2	13	15
Moisture	29.9	34.2	13	15

* - Outside of specification
(1) - The result for one or both determinations was less than five times the LOQ.

Moisture Data Report

Batch #: 12025820002

Sample ID	Batch ID	Analysis#	Tare Wt	Sample Wt	Dry Wt	%Moisture	Analysis Date (Emp#)	Verified Date (Emp#)
LCS 89.5% Std.			1.0933	5.0321	1.6272	89.39	1/25/12 (1201/SWF)	1/26/12 (0236/CW)
6526784BKG	B	00111	1.0833	9.1135	7.4687	29.93	1/25/12 (1201/SWF)	1/26/12 (0236/CW)
6526785MS	B	00118				29.93	1/25/12 (1201/SWF)	1/26/12 (0236/CW)
6526786MSD	B	00118				29.93	1/25/12 (1201/SWF)	1/26/12 (0236/CW)
6526787DUP	B	00118				29.93	1/25/12 (1201/SWF)	1/26/12 (0236/CW)
6526787DUP	B	00121	1.0980	9.5323	7.3731	34.17	1/25/12 (1201/SWF)	1/26/12 (0236/CW)
6526788	B	00111	1.0984	8.3541	6.4239	36.25	1/25/12 (1201/SWF)	1/26/12 (0236/CW)
6526789FD	B	00111	1.0646	9.8443	7.3460	36.19	1/25/12 (1201/SWF)	1/26/12 (0236/CW)
6526790	B	00111	1.1061	9.0562	6.7711	37.45	1/25/12 (1201/SWF)	1/26/12 (0236/CW)
6526791	B	00111	1.1116	7.8397	7.8347	14.24	1/25/12 (1201/SWF)	1/26/12 (0236/CW)
6526792	B	00111	1.0784	7.5563	7.2410	18.44	1/25/12 (1201/SWF)	1/26/12 (0236/CW)
6526793	B	00111	1.0972	9.3949	7.2868	34.12	1/25/12 (1201/SWF)	1/26/12 (0236/CW)

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Type I (No Raw Data) Data Package

Prepared for:

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

Project: Dow Hanging Rock, OH
Water Samples
Collected on 01/18/12

SDG# DHR15

GROUP	SAMPLE NUMBERS
1285786	6526799-6526807

PA Cert. # 36-00037
NY Cert. # 10670
NJ Cert. # PA011
NC Cert. # 521
TX Cert. # T104704194-08A-TX

Through our technical processes and second person review of data, we have established that our data/deliverables are in compliance with the methods and project requirements unless otherwise noted or previously resolved with the client.

Authorized by: Dana M Kauffman **Date: 02/03/2012**

Dana M. Kauffman
Manager

Any questions or concerns you might have regarding this data package should be directed to your client representative, Wendy Kozma at Ext. 1522.

Total Number of Pages 165

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Sample Reference List for SDG Number DHR15 with a Data Package Type of I-NODATA

11372 - CH2M Hill, Inc.

Project: Dow Hanging Rock, OH

Lab Sample Number	Lab Sample Code	Client Sample Description
6526799	TB02-	HGR-011812-TB02 Water
6526800	FD01-	HGR-011812-FD01 Grab Water
6526801	WW2--	WW2-0000-011812 Grab Water
6526802	WW5--	WW5-0000-011812 Grab Water
6526803	WW5--	WW5-0000-011812 MS Grab Water
6526804	WW5--	WW5-0000-011812 MSD Grab Water
6526805	SG000	SG-0000-011812 Grab Water
6526806	IDWW2	HGR-IDW-W2 Composite Water
6526807	IDWW3	HGR-IDW-W3 Composite Water

Analysis Request/ Environmental Services Chain of Custody

Lancaster Laboratories

For Lancaster Laboratories use only

Acct. # 11372 Group# 1285786 Sample # 6526799-807 **COC #** 277854

Please print. Instructions on reverse side correspond with circled numbers.

For Lab Use Only
FSC:
SCR#: 116276

(1) Client: CH2M HILL Acct. #:
Project Name/#: Dow Hanging Rock /420671 PWSID #:
Project Manager: Mark Holland /CH2M HILL P.O.#:
Sampler: Brian Wachter /CH2M HILL Quote #:
Name of state where samples were collected: Ohio

(5) Analyses Requested — Preservation Codes

Preservation Codes: H=HCl, T=Thiosulfate, N=HNO_3, B=NaOH, S=H_2SO_4, O=Other

(2) Sample Identification	Date Collected	Time Collected	(3) Grab	Composite	Soil	Water (Potable / NPDES)	Other	(4) Total # of Containers	VOCs	Total cyanide	SOD, Total Suspended Solids	HEM (Oil & grease)	Chromium	Metals (Copper, Lead, Nickel, Zinc, Aluminum, Mercury)	EPA 624 Water	Method 625	TOC	Remarks	(6) Temperature of samples upon receipt (if requested)
HGR-011812-TB02	01/18/12	1720	X			X		2	X										
HGR-011812-FD01	01/18/12	—	X			X		3	X									only analyze VOCs	
WW2-0000-011812	01/18/12	1600	X			X		3	X									only analyze VOCs	
WW5-0000-011812	01/18/12	1310	X			X		3	X									only analyze VOCs	
WW5-0000-011812 MS	01/18/12	1310	X			X		3	X									only analyze VOCs	
WW5-0000-011812 MSD	01/18/12	1310	X			X		3	X									only analyze VOCs	
SG-0000-011812	01/18/12	1430	X			X		3	X									only analyze VOCs	
HGR-IDW-W2	01/18/12	1450		X		X		13	X	X	X	X	X	X	X	X	X		
HGR-IDW-W3	01/18/12	1510		X		X		13		X	X	X	X	X	X	X	X		

[signature] 01/18/12

(7) **Turnaround Time Requested** (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed:
Rush results requested by (please circle): Phone Fax E-mail
Phone #: Fax #:
E-mail address:

(8) **Data Package Options** (please circle if required)
Type I (validation/NJ Reg) TX TRRP-13
Type II (Tier II) MA MCP CT RCP
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)

SDG Complete? Yes No
Site-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate volume.)
Internal COC Required? Yes / No

(9)

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	1-12-12	1400			
[signature]	01/18/12	1730			
			[signature]	1-19-12	945

Lancaster Laboratories, Inc., 2425 New Holland Pike, Lancaster, PA 17601 (717) 656-2300 Fax: (717) 656-6766
Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client.

Issued by Dept. 6042 Management
2102.05

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Environmental Sample Administration
Receipt Documentation Log

Client/Project: Cham Hill

Date of Receipt: 1-19-12

Time of Receipt: 945

Source Code: 50-1

Shipping Container Sealed: (YES) NO

Custody Seal Present * : (YES) NO

* Custody seal was intact unless otherwise noted in the discrepancy section

Package: (Chilled) Not Chilled

Temperature of Shipping Containers							
Cooler #	Thermometer ID	Temperature (°C)	Temp Bottle (TB) or Surface Temp (ST)	Wet Ice (WI) or Dry Ice (DI) or Ice Packs (IP)	Ice Present? Y/N	Loose (L) Bagged Ice (B) or NA	ST 1336 Comments
1	2783	3.3	TB	WI	Y	B	
2	↓	3.6	↓	↓	↓	↓	
* 3	↓	6.3	↓	↓	↓	↓	6.8 7.0 7.5 6.8 7.0 7.1
4	↓	4.6	↓	↓	↓	↓	
5	↓	1.4	↓	↓	↓	↓	
6	↓	4.4	↓	↓	↓	↓	

Number of Trip Blanks received NOT listed on chain of custody: 2

Paperwork Discrepancy/Unpacking Problems:

BLB 1-19-12

* Ice on top of cooler TB on Bottom
Rec 1 metals QC for MGR-1DW-WL3
Time 1510

Unpacker Signature/Emp#: Brandy Bardy 2299 **Date/Time:** 1-19-12 1106

DHR15 5003

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2174.06

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Environmental Sample Administration
Receipt Documentation Log
(continuation page)

Client/Project: Cham Hill

Date of Receipt: 1-19-12

Unpacker Emp. No.: 2299

Additional Paperwork Discrepancy/Unpacking Problems:

Rec 13 containers for ID's that Say Rec 3 containers.

Rec Following Samples out of temp Total Cyanide - SG-0000-011812, HGR-1DW-W2 BOD - SG-0000-011812

O&G - 2 Bottles for - HGR-011812-FD01, WWS-0000-011812, WWS-0000-011812MS, WWS-0000-011812MSD

lead - SG-0000-011812, HGR-1DW-W2

low level mercury - HGR-011812-FD01, WWS-0000-011812, WWS-0000-011812MS WWS-0000-011812MSD, SG-0000-011812 HGR-1DW-W2
HGR-1DW-54 Time = 1515
HGR-1DW-55 Time = 1530

DHR15 9884

Lancaster Laboratories
2425 New Holland Pike • Lancaster, PA 17601

GC/MS Volatiles pH Log

Batch # : M120241AA

LLI#	pH	Date Checked	Initials/ Employee #	Comments
6526799	<2	1/25/2012	LCP 0895	38A
6525012	<2	1/25/2012	LCP 0895	38B
6525015	<2	1/25/2012	LCP 0895	38B - NU
6525016	<2	1/25/2012	LCP 0895	38B
6526800	<2	1/25/2012	LCP 0895	38A
6526801	<2	1/25/2012	LCP 0895	38A
6526802	<2	1/25/2012	LCP 0895	38A
6526803	<2	1/25/2012	LCP 0895	38A
6526804	<2	1/25/2012	LCP 0895	38A
6526805	<2	1/25/2012	LCP 0895	38A
6526806	<2	1/25/2012	LCP 0895	38A
6526807	<2	1/25/2012	LCP 0895	38A
6526843	<2	1.25.12	LCP 895	38A

DHR15 0005

Bottle Code	Expected pH	Actual pH	Adjusted pH	Lot #	Preservative	Lab Submitted?	Sub-contracted?	Preservation Code	Date Entered
Jesse Mertz									
SDG: DHR15									
Group: 1285786									
Sample: 6526806									
008A	<2	<2			HNO3	Y	N	PK - Original container checked - pH is within correct range. (No preservative was added)	01/20/2012
002A	>12	>12			NaOH	Y	N	PK - Original container checked - pH is within correct range. (No preservative was added)	01/20/2012

Check	Present?	Corrective Substance	Lot #
Sulfide	N		
Res.Cl.	N		

091A	<2	<2			H3PO4	Y	N	PK - Original container checked - pH is within correct range. (No preservative was added)	01/20/2012
091B	<2	<2			H3PO4	Y	N	PK - Original container checked - pH is within correct range. (No preservative was added)	01/20/2012
Sample: 6526807									
008A	<2	<2			HNO3	Y	N	PK - Original container checked - pH is within correct range. (No preservative was added)	01/20/2012
002A	>12	>12			NaOH	Y	N	PK - Original container checked - pH is within correct range. (No preservative was added)	01/20/2012

Check	Present?	Corrective Substance	Lot #
Sulfide	N		
Res.Cl.	N		

091A	<2	<2			H3PO4	Y	N	PK - Original container checked - pH is within correct range. (No preservative was added)	01/20/2012
091B	<2	<2			H3PO4	Y	N	PK - Original container checked - pH is within correct range. (No preservative was added)	01/20/2012

* linked sample

Bottle Code	Expected pH	Actual pH	Adjusted pH	Lot #	Preservative	Lab Submitted?	Sub-contracted?	Preservation Code	Date Entered
138A	<2	<2			HNO3	Y	N	PK - Original container checked - pH is within correct range. (No preservative was added)	01/20/2012

* linked samples

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10371 EPA 624 water

The water sample is purged and the volatile compounds are collected on a sorbent trap that is subsequently desorbed onto the GC/MS system for chromatographic and mass spectral analysis.

Reference: USEPA, 40 CFR Part 136, Appendix A, Method 624

05716 EPA 600 ICP Digest (tot rec)

The sample is digested with nitric acid and hydrochloric acid.

Reference: Method 200.7 (rev. 4.4), Determination of Metals and Trace Metals in Water and Wastes by Inductively Coupled Plasma-Atomic Emission Spectrometry, USEPA 600/R-94/111 May 1994.

07051 Chromium
07053 Copper
07055 Lead
07061 Nickel
07072 Zinc

The solution resulting from the metals digestion is analyzed by Trace ICP.

Reference: Method 200.7 (rev. 4.4), Determination of Metals and Trace Metals in Water and Wastes by Inductively Coupled Plasma-Atomic Emission Spectrometry, USEPA 600/R-94/111 May 1994.

01574 Low Level Mercury Water

The solution resulting from the Low Level Hg digestion is analyzed by Cold Vapor Fluoresence Spectrometry.

Reference: Method 1631, Revision E: Mercury in Water by Oxidation Purge and Trap, and Cold Vapor Atomic Fluorescence Spectrometry

01573 Low Level Hg Digestion Water

The sample is digested with bromomonochloride.

Reference: Method 1631, Revision E: Mercury in Water by Oxidation Purge and Trap, and Cold Vapor Atomic Fluorescence Spectrometry

08108 625 Water Extraction

The sample aliquot is extracted with methylene chloride by separatory funnel. Extraction is performed at both a pH of 11 and 2. The extract is concentrated prior to analysis.

Reference: USEPA, 40 CFR Part 136, Appendix A, Method 625

10334 Method 625

The sample extract is analyzed by capillary column Gas Chromatography/Mass Spectrometry.

Reference: USEPA, 40 CFR Part 136, Appendix A, Method 625

00237 Total Cyanide (water)

During the distillation step, complex cyanides are converted to hydrogen cyanide which readily reacts with chloramine T. Simple cyanides are converted to cyanogen chloride by reaction with chloramine T. This reacts with pyridine and barbituric acid to give a red colored complex determined colorimetrically.

Reference: Method 335.4, Methods for Chemical Analysis of Water and Wastes USEPA 600 Revision 1.0, 1993

00492 Cyanide Water Distillation

The sample is acidified and distilled. Cyanide is released as hydrogen cyanide and is absorbed in a sodium hydroxide solution.

Reference: Method 335.4, Methods for Chemical Analysis of Water and Wastes USEPA 600 Revision 1.0, 1993

00273 Total Organic Carbon

TOC is determined by first removing the inorganic carbon from a sample. The remaining carbon is then oxidized to carbon dioxide, which is measured by a nondispersive infrared detector. The mass of carbon dioxide detected is proportional to the mass of TOC in the sample.

Reference: Standard Methods for the Examination of Water and Wastewater, 20th Edition, 1998, Method 5310 C

00206 Total Suspended Solids

A well-mixed sample is filtered through a tared gooch crucible. The residue on the filter is dried to a constant weight at 103-105C. The increase in weight is the total suspended solids.

Reference: Standard Methods for the Examination of Water and Wastewater, 20th Edition, 1998, Method 2540 D

00235 Biochemical Oxygen Demand

The sample is seeded and incubated with nutrients for 5 days at 20C. The reduction of dissolved oxygen concentration during incubation yields a measure of the BOD.

Reference: Standard Methods for the Examination of Water and Wastewater, 20th Edition, 1998, Method 5210 B

08079 HEM (oil & grease)

This method is for the determination of n-hexane extractable materials (HEM). A sample is serially extracted with n-hexane. The extract is dried and the residual HEM is determined gravimetrically.

Reference: EPA Methods for Chemical Analysis of Water and Wastes, EPA Method 1664A

ANALYTICAL RESULTS

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425

Prepared for:

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

January 31, 2012

Project: Dow Hanging Rock, OH

Submittal Date: 01/19/2012
Group Number: 1285786
SDG: DHR15
PO Number: 420671-04
Release Number: DHR15
State of Sample Origin: OH

Client Sample Description	Lancaster Labs (LLI) #
HGR-011812-TB02 Water	6526799
HGR-011812-FD01 Grab Water	6526800
WW2-0000-011812 Grab Water	6526801
WW5-0000-011812 Grab Water	6526802
WW5-0000-011812 MS Grab Water	6526803
WW5-0000-011812 MSD Grab Water	6526804
SG-0000-011812 Grab Water	6526805
HGR-IDW-W2 Composite Water	6526806
HGR-IDW-W3 Composite Water	6526807

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Shane Lowe
ELECTRONIC COPY TO	CH2M Hill, Inc.	Attn: Rachel Grand
1 COPY TO	Data Package Group	

DHR15 2216

Questions? Contact your Client Services Representative
Wendy A Kozma at (717) 656-2300 Ext. 1522

Respectfully Submitted,

Mark A. Ratcliff
Senior Specialist

DHR15 0811

Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster PA, 17605-2425
717-656-2300 Fax: 717-656-2681

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Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	**BMQL**	Below Minimum Quantitation Level
N.D.	none detected	**MPN**	Most Probable Number
TNTC	Too Numerous To Count	**CP Units**	cobalt-chloroplatinate units
IU	International Units	**NTU**	nephelometric turbidity units
umhos/cm	micromhos/cm	**ng**	nanogram(s)
C	degrees Celsius	**F**	degrees Fahrenheit
meq	milliequivalents	**lb.**	pound(s)
g	gram(s)	**kg**	kilogram(s)
µg	microgram(s)	**mg**	milligram(s)
mL	milliliter(s)	**L**	liter(s)
m3	cubic meter(s)	**µL**	microliter(s)
		pg/L	picogram/liter

< less than - The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

J estimated value – The result is ≥ the Method Detection Limit (MDL) and < the Limit of Quantitation (LOQ).

ppm parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.

U.S. EPA CLP Data Qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike sample not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*****	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR part 136 Table II as "analyze immediately" are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL LANCASTER LABORATORIES BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF LANCASTER LABORATORIES AND (B) WHETHER LANCASTER LABORATORIES HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Lancaster Laboratories which includes any conditions that vary from the Standard Terms and Conditions, and Lancaster hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Sample Description: HGR-011812-TB02 Water
Dow Hanging Rock, OH

LLI Sample # WW 6526799
LLI Group # 1285786
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 17:20

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 12:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

TB02- SDG#: DHR15-01TB

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	EPA 624		ug/l		ug/l	
10371	Acrolein	107-02-8	10	U	10	1
10371	Acrylonitrile	107-13-1	10	U	10	1
10371	Benzene	71-43-2	0.9	U	0.9	1
10371	Bromodichloromethane	75-27-4	0.7	U	0.7	1
10371	Bromoform	75-25-2	0.8	U	0.8	1
10371	Bromomethane	74-83-9	2	U	2	1
10371	Carbon Tetrachloride	56-23-5	1	U	1	1
10371	Chlorobenzene	108-90-7	0.8	U	0.8	1
10371	Chloroethane	75-00-3	2	U	2	1
10371	2-Chloroethyl Vinyl Ether	110-75-8	2	U	2	1
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.					
10371	Chloroform	67-66-3	1	U	1	1
10371	Chloromethane	74-87-3	2	U	2	1
10371	Dibromochloromethane	124-48-1	1	U	1	1
10371	1,2-Dichlorobenzene	95-50-1	1	U	1	1
10371	1,3-Dichlorobenzene	541-73-1	1	U	1	1
10371	1,4-Dichlorobenzene	106-46-7	1	U	1	1
10371	1,1-Dichloroethane	75-34-3	1	U	1	1
10371	1,2-Dichloroethane	107-06-2	1	U	1	1
10371	1,1-Dichloroethene	75-35-4	0.9	U	0.9	1
10371	cis-1,2-Dichloroethene	156-59-2	1	U	1	1
10371	trans-1,2-Dichloroethene	156-60-5	1	U	1	1
10371	1,2-Dichloropropane	78-87-5	1	U	1	1
10371	cis-1,3-Dichloropropene	10061-01-5	1	U	1	1
10371	trans-1,3-Dichloropropene	10061-02-6	0.6	U	0.6	1
10371	Ethylbenzene	100-41-4	0.8	U	0.8	1
10371	Methylene Chloride	75-09-2	2	U	2	1
10371	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	1
10371	Tetrachloroethene	127-18-4	1	U	1	1
10371	Toluene	108-88-3	0.8	U	0.8	1
10371	1,1,1-Trichloroethane	71-55-6	1	U	1	1
10371	1,1,2-Trichloroethane	79-00-5	1	U	1	1
10371	Trichloroethene	79-01-6	1	U	1	1
10371	Trichlorofluoromethane	75-69-4	2	U	2	1
10371	Vinyl Chloride	75-01-4	2	U	2	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10371	EPA 624 water	EPA 624	1	M120241AA	01/24/2012 14:19	Linda C Pape	1

Sample Description: HGR-011812-FD01 Grab Water
Dow Hanging Rock, OH

LLI Sample # WW 6526800
LLI Group # 1285786
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 by BW

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 12:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

FD01- SDG#: DHR15-02FD

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**EPA 624**		ug/l		ug/l	
10371	Acrolein	107-02-8	10	U	10	1
10371	Acrylonitrile	107-13-1	10	U	10	1
10371	Benzene	71-43-2	0.9	U	0.9	1
10371	Bromodichloromethane	75-27-4	0.7	U	0.7	1
10371	Bromoform	75-25-2	0.8	U	0.8	1
10371	Bromomethane	74-83-9	2	U	2	1
10371	Carbon Tetrachloride	56-23-5	1	U	1	1
10371	Chlorobenzene	108-90-7	0.8	U	0.8	1
10371	Chloroethane	75-00-3	2	U	2	1
10371	2-Chloroethyl Vinyl Ether	110-75-8	2	U	2	1
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.					
10371	Chloroform	67-66-3	1	U	1	1
10371	Chloromethane	74-87-3	2	U	2	1
10371	Dibromochloromethane	124-48-1	1	U	1	1
10371	1,2-Dichlorobenzene	95-50-1	1	U	1	1
10371	1,3-Dichlorobenzene	541-73-1	1	U	1	1
10371	1,4-Dichlorobenzene	106-46-7	1	U	1	1
10371	1,1-Dichloroethane	75-34-3	1	U	1	1
10371	1,2-Dichloroethane	107-06-2	1	U	1	1
10371	1,1-Dichloroethene	75-35-4	0.9	U	0.9	1
10371	cis-1,2-Dichloroethene	156-59-2	1	U	1	1
10371	trans-1,2-Dichloroethene	156-60-5	1	U	1	1
10371	1,2-Dichloropropane	78-87-5	1	U	1	1
10371	cis-1,3-Dichloropropene	10061-01-5	1	U	1	1
10371	trans-1,3-Dichloropropene	10061-02-6	0.6	U	0.6	1
10371	Ethylbenzene	100-41-4	0.8	U	0.8	1
10371	Methylene Chloride	75-09-2	2	U	2	1
10371	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	1
10371	Tetrachloroethene	127-18-4	1	U	1	1
10371	Toluene	108-88-3	0.8	U	0.8	1
10371	1,1,1-Trichloroethane	71-55-6	1	U	1	1
10371	1,1,2-Trichloroethane	79-00-5	1	U	1	1
10371	Trichloroethene	79-01-6	1	U	1	1
10371	Trichlorofluoromethane	75-69-4	2	U	2	1
10371	Vinyl Chloride	75-01-4	2	U	2	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10371	EPA 624 water	EPA 624	1	M120241AA	01/24/2012 16:53	Linda C Pape	DHR15 02FD

Sample Description: WW2-0000-011812 Grab Water
Dow Hanging Rock, OH

LLI Sample # WW 6526801
LLI Group # 1285786
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 16:00 by BW

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 12:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

WW2-- SDG#: DHR15-03

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**EPA 624**		ug/l		ug/l	
10371	Acrolein	107-02-8	10	U	10	1
10371	Acrylonitrile	107-13-1	10	U	10	1
10371	Benzene	71-43-2	0.9	U	0.9	1
10371	Bromodichloromethane	75-27-4	0.7	U	0.7	1
10371	Bromoform	75-25-2	0.8	U	0.8	1
10371	Bromomethane	74-83-9	2	U	2	1
10371	Carbon Tetrachloride	56-23-5	1	U	1	1
10371	Chlorobenzene	108-90-7	0.8	U	0.8	1
10371	Chloroethane	75-00-3	2	U	2	1
10371	2-Chloroethyl Vinyl Ether	110-75-8	2	U	2	1
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.					
10371	Chloroform	67-66-3	1	U	1	1
10371	Chloromethane	74-87-3	2	U	2	1
10371	Dibromochloromethane	124-48-1	1	U	1	1
10371	1,2-Dichlorobenzene	95-50-1	1	U	1	1
10371	1,3-Dichlorobenzene	541-73-1	1	U	1	1
10371	1,4-Dichlorobenzene	106-46-7	1	U	1	1
10371	1,1-Dichloroethane	75-34-3	1	U	1	1
10371	1,2-Dichloroethane	107-06-2	1	U	1	1
10371	1,1-Dichloroethene	75-35-4	0.9	U	0.9	1
10371	cis-1,2-Dichloroethene	156-59-2	1	U	1	1
10371	trans-1,2-Dichloroethene	156-60-5	1	U	1	1
10371	1,2-Dichloropropane	78-87-5	1	U	1	1
10371	cis-1,3-Dichloropropene	10061-01-5	1	U	1	1
10371	trans-1,3-Dichloropropene	10061-02-6	0.6	U	0.6	1
10371	Ethylbenzene	100-41-4	0.8	U	0.8	1
10371	Methylene Chloride	75-09-2	2	U	2	1
10371	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	1
10371	Tetrachloroethene	127-18-4	1	U	1	1
10371	Toluene	108-88-3	0.8	U	0.8	1
10371	1,1,1-Trichloroethane	71-55-6	1	U	1	1
10371	1,1,2-Trichloroethane	79-00-5	1	U	1	1
10371	Trichloroethene	79-01-6	1	U	1	1
10371	Trichlorofluoromethane	75-69-4	2	U	2	1
10371	Vinyl Chloride	75-01-4	2	U	2	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10371	EPA 624 water	EPA 624	1	M120241AA	01/24/2012 17:18	Linda C Pape	1

DHR15 0815

Sample Description: WW5-0000-011812 Grab Water
Dow Hanging Rock, OH

LLI Sample # WW 6526802
LLI Group # 1285786
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 13:10 by BW

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 12:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

WW5-- SDG#: DHR15-04BKG

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**EPA 624**		ug/l		ug/l	
10371	Acrolein	107-02-8	10	U	10	1
10371	Acrylonitrile	107-13-1	10	U	10	1
10371	Benzene	71-43-2	0.9	U	0.9	1
10371	Bromodichloromethane	75-27-4	0.7	U	0.7	1
10371	Bromoform	75-25-2	0.8	U	0.8	1
10371	Bromomethane	74-83-9	2	U	2	1
10371	Carbon Tetrachloride	56-23-5	1	U	1	1
10371	Chlorobenzene	108-90-7	0.8	U	0.8	1
10371	Chloroethane	75-00-3	2	U	2	1
10371	2-Chloroethyl Vinyl Ether	110-75-8	2	U	2	1
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.					
10371	Chloroform	67-66-3	1	U	1	1
10371	Chloromethane	74-87-3	2	U	2	1
10371	Dibromochloromethane	124-48-1	1	U	1	1
10371	1,2-Dichlorobenzene	95-50-1	1	U	1	1
10371	1,3-Dichlorobenzene	541-73-1	1	U	1	1
10371	1,4-Dichlorobenzene	106-46-7	1	U	1	1
10371	1,1-Dichloroethane	75-34-3	1	U	1	1
10371	1,2-Dichloroethane	107-06-2	1	U	1	1
10371	1,1-Dichloroethene	75-35-4	0.9	U	0.9	1
10371	cis-1,2-Dichloroethene	156-59-2	1	U	1	1
10371	trans-1,2-Dichloroethene	156-60-5	1	U	1	1
10371	1,2-Dichloropropane	78-87-5	1	U	1	1
10371	cis-1,3-Dichloropropene	10061-01-5	1	U	1	1
10371	trans-1,3-Dichloropropene	10061-02-6	0.6	U	0.6	1
10371	Ethylbenzene	100-41-4	0.8	U	0.8	1
10371	Methylene Chloride	75-09-2	2	U	2	1
10371	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	1
10371	Tetrachloroethene	127-18-4	1	U	1	1
10371	Toluene	108-88-3	0.8	U	0.8	1
10371	1,1,1-Trichloroethane	71-55-6	1	U	1	1
10371	1,1,2-Trichloroethane	79-00-5	1	U	1	1
10371	Trichloroethene	79-01-6	1	U	1	1
10371	Trichlorofluoromethane	75-69-4	2	U	2	1
10371	Vinyl Chloride	75-01-4	2	U	2	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10371	EPA 624 water	EPA 624	1	M120241AA	01/24/2012 17:43	Linda C Pape	1

DHR15 0016

eurofins | Lancaster Laboratories

Analysis Report

Sample Description: WW5-0000-011812 MS Grab Water
Dow Hanging Rock, OH

LLI Sample # WW 6526803
LLI Group # 1285786
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 13:10 by BW

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 12:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

WW5-- SDG#: DHR15-04MS

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**EPA 624**		ug/l		ug/l	
10371	Acrolein	107-02-8	140		10	1
10371	Acrylonitrile	107-13-1	78		10	1
10371	Benzene	71-43-2	20		0.9	1
10371	Bromodichloromethane	75-27-4	21		0.7	1
10371	Bromoform	75-25-2	22		0.8	1
10371	Bromomethane	74-83-9	15		2	1
10371	Carbon Tetrachloride	56-23-5	19		1	1
10371	Chlorobenzene	108-90-7	20		0.8	1
10371	Chloroethane	75-00-3	16		2	1
10371	2-Chloroethyl Vinyl Ether	110-75-8	2	U	2	1
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.					
10371	Chloroform	67-66-3	17		1	1
10371	Chloromethane	74-87-3	11		2	1
10371	Dibromochloromethane	124-48-1	21		1	1
10371	1,2-Dichlorobenzene	95-50-1	22		1	1
10371	1,3-Dichlorobenzene	541-73-1	22		1	1
10371	1,4-Dichlorobenzene	106-46-7	22		1	1
10371	1,1-Dichloroethane	75-34-3	20		1	1
10371	1,2-Dichloroethane	107-06-2	22		1	1
10371	1,1-Dichloroethene	75-35-4	20		0.9	1
10371	cis-1,2-Dichloroethene	156-59-2	20		1	1
10371	trans-1,2-Dichloroethene	156-60-5	20		1	1
10371	1,2-Dichloropropane	78-87-5	19		1	1
10371	cis-1,3-Dichloropropene	10061-01-5	19		1	1
10371	trans-1,3-Dichloropropene	10061-02-6	20		0.6	1
10371	Ethylbenzene	100-41-4	21		0.8	1
10371	Methylene Chloride	75-09-2	19		2	1
10371	1,1,2,2-Tetrachloroethane	79-34-5	22		1	1
10371	Tetrachloroethene	127-18-4	23		1	1
10371	Toluene	108-88-3	21		0.8	1
10371	1,1,1-Trichloroethane	71-55-6	18		1	1
10371	1,1,2-Trichloroethane	79-00-5	20		1	1
10371	Trichloroethene	79-01-6	21		1	1
10371	Trichlorofluoromethane	75-69-4	20		2	1
10371	Vinyl Chloride	75-01-4	14		2	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10371	EPA 624 water	EPA 624	1	M120241AA	01/24/2012 18:09	Linda C Pape	1

DHR15 8817

Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster PA, 17605-2425
717-656-2300 Fax: 717-656-2681

Sample Description: WW5-0000-011812 MSD Grab Water
Dow Hanging Rock, OH

LLI Sample # WW 6526804
LLI Group # 1285786
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 13:10 by BW

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 12:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

WW5-- SDG#: DHR15-04MSD

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**EPA 624**		ug/l		ug/l	
10371	Acrolein	107-02-8	140		10	1
10371	Acrylonitrile	107-13-1	77		10	1
10371	Benzene	71-43-2	20		0.9	1
10371	Bromodichloromethane	75-27-4	21		0.7	1
10371	Bromoform	75-25-2	22		0.8	1
10371	Bromomethane	74-83-9	14		2	1
10371	Carbon Tetrachloride	56-23-5	19		1	1
10371	Chlorobenzene	108-90-7	21		0.8	1
10371	Chloroethane	75-00-3	15		2	1
10371	2-Chloroethyl Vinyl Ether	110-75-8	2	U	2	1
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.					
10371	Chloroform	67-66-3	17		1	1
10371	Chloromethane	74-87-3	11		2	1
10371	Dibromochloromethane	124-48-1	21		1	1
10371	1,2-Dichlorobenzene	95-50-1	22		1	1
10371	1,3-Dichlorobenzene	541-73-1	22		1	1
10371	1,4-Dichlorobenzene	106-46-7	22		1	1
10371	1,1-Dichloroethane	75-34-3	19		1	1
10371	1,2-Dichloroethane	107-06-2	22		1	1
10371	1,1-Dichloroethene	75-35-4	20		0.9	1
10371	cis-1,2-Dichloroethene	156-59-2	19		1	1
10371	trans-1,2-Dichloroethene	156-60-5	20		1	1
10371	1,2-Dichloropropane	78-87-5	19		1	1
10371	cis-1,3-Dichloropropene	10061-01-5	19		1	1
10371	trans-1,3-Dichloropropene	10061-02-6	20		0.6	1
10371	Ethylbenzene	100-41-4	22		0.8	1
10371	Methylene Chloride	75-09-2	19		2	1
10371	1,1,2,2-Tetrachloroethane	79-34-5	22		1	1
10371	Tetrachloroethene	127-18-4	23		1	1
10371	Toluene	108-88-3	21		0.8	1
10371	1,1,1-Trichloroethane	71-55-6	18		1	1
10371	1,1,2-Trichloroethane	79-00-5	20		1	1
10371	Trichloroethene	79-01-6	21		1	1
10371	Trichlorofluoromethane	75-69-4	20		2	1
10371	Vinyl Chloride	75-01-4	14		2	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10371	EPA 624 water	EPA 624	1	M120241AA	01/24/2012 18:34	Linda C Pape	DHR15 6801B

Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster PA, 17605-2425
717-656-2300 Fax: 717-656-2681

Sample Description: SG-0000-011812 Grab Water
Dow Hanging Rock, OH

LLI Sample # WW 6526805
LLI Group # 1285786
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 14:30 by BW

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 12:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

SG000 SDG#: DHR15-05

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**EPA 624**		**ug/l**		**ug/l**	
10371	Acrolein	107-02-8	10	U	10	1
10371	Acrylonitrile	107-13-1	10	U	10	1
10371	Benzene	71-43-2	0.9	U	0.9	1
10371	Bromodichloromethane	75-27-4	0.7	U	0.7	1
10371	Bromoform	75-25-2	0.8	U	0.8	1
10371	Bromomethane	74-83-9	2	U	2	1
10371	Carbon Tetrachloride	56-23-5	1	U	1	1
10371	Chlorobenzene	108-90-7	0.8	U	0.8	1
10371	Chloroethane	75-00-3	2	U	2	1
10371	2-Chloroethyl Vinyl Ether	110-75-8	2	U	2	1
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.					
10371	Chloroform	67-66-3	1	U	1	1
10371	Chloromethane	74-87-3	2	U	2	1
10371	Dibromochloromethane	124-48-1	1	U	1	1
10371	1,2-Dichlorobenzene	95-50-1	1	U	1	1
10371	1,3-Dichlorobenzene	541-73-1	1	U	1	1
10371	1,4-Dichlorobenzene	106-46-7	1	U	1	1
10371	1,1-Dichloroethane	75-34-3	1	U	1	1
10371	1,2-Dichloroethane	107-06-2	1	U	1	1
10371	1,1-Dichloroethene	75-35-4	0.9	U	0.9	1
10371	cis-1,2-Dichloroethene	156-59-2	1	U	1	1
10371	trans-1,2-Dichloroethene	156-60-5	1	U	1	1
10371	1,2-Dichloropropane	78-87-5	1	U	1	1
10371	cis-1,3-Dichloropropene	10061-01-5	1	U	1	1
10371	trans-1,3-Dichloropropene	10061-02-6	0.6	U	0.6	1
10371	Ethylbenzene	100-41-4	0.8	U	0.8	1
10371	Methylene Chloride	75-09-2	2	U	2	1
10371	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	1
10371	Tetrachloroethene	127-18-4	1	U	1	1
10371	Toluene	108-88-3	0.8	U	0.8	1
10371	1,1,1-Trichloroethane	71-55-6	1	U	1	1
10371	1,1,2-Trichloroethane	79-00-5	1	U	1	1
10371	Trichloroethene	79-01-6	1	U	1	1
10371	Trichlorofluoromethane	75-69-4	2	U	2	1
10371	Vinyl Chloride	75-01-4	2	U	2	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10371	EPA 624 water	EPA 624	1	M120241AA	01/24/2012 19:00	Linda C Pape	DHR15 8613

Lancaster Laboratories, Inc.
2425 New Holland Pike
PO Box 12425
Lancaster PA, 17605-2425
717-656-2300 Fax: 717-656-2681

Sample Description: HGR-IDW-W2 Composite Water
Dow Hanging Rock, OH

LLI Sample # WW 6526806
LLI Group # 1285786
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 14:50 by BW

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 12:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

IDWW2 SDG#: DHR15-06

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**EPA 624**		ug/l		ug/l	
10371	Acrolein	107-02-8	10	U	10	1
10371	Acrylonitrile	107-13-1	10	U	10	1
10371	Benzene	71-43-2	0.9	U	0.9	1
10371	Bromodichloromethane	75-27-4	0.7	U	0.7	1
10371	Bromoform	75-25-2	0.8	U	0.8	1
10371	Bromomethane	74-83-9	2	U	2	1
10371	Carbon Tetrachloride	56-23-5	1	U	1	1
10371	Chlorobenzene	108-90-7	0.8	U	0.8	1
10371	Chloroethane	75-00-3	2	U	2	1
10371	2-Chloroethyl Vinyl Ether	110-75-8	2	U	2	1
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.					
10371	Chloroform	67-66-3	2	J	1	1
10371	Chloromethane	74-87-3	2	U	2	1
10371	Dibromochloromethane	124-48-1	1	U	1	1
10371	1,2-Dichlorobenzene	95-50-1	1	U	1	1
10371	1,3-Dichlorobenzene	541-73-1	1	U	1	1
10371	1,4-Dichlorobenzene	106-46-7	1	U	1	1
10371	1,1-Dichloroethane	75-34-3	1	U	1	1
10371	1,2-Dichloroethane	107-06-2	1	U	1	1
10371	1,1-Dichloroethene	75-35-4	0.9	U	0.9	1
10371	cis-1,2-Dichloroethene	156-59-2	1	U	1	1
10371	trans-1,2-Dichloroethene	156-60-5	1	U	1	1
10371	1,2-Dichloropropane	78-87-5	1	U	1	1
10371	cis-1,3-Dichloropropene	10061-01-5	1	U	1	1
10371	trans-1,3-Dichloropropene	10061-02-6	0.6	U	0.6	1
10371	Ethylbenzene	100-41-4	0.8	U	0.8	1
10371	Methylene Chloride	75-09-2	2	U	2	1
10371	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	1
10371	Tetrachloroethene	127-18-4	1	U	1	1
10371	Toluene	108-88-3	0.8	U	0.8	1
10371	1,1,1-Trichloroethane	71-55-6	1	U	1	1
10371	1,1,2-Trichloroethane	79-00-5	1	U	1	1
10371	Trichloroethene	79-01-6	1	U	1	1
10371	Trichlorofluoromethane	75-69-4	2	U	2	1
10371	Vinyl Chloride	75-01-4	2	U	2	1
GC/MS Semivolatiles	**EPA 625**		ug/l		ug/l	
10334	Acenaphthene	83-32-9	0.3	U	0.3	1
10334	Acenaphthylene	208-96-8	0.3	U	0.3	1
10334	Anthracene	120-12-7	0.2	U	0.2	1
10334	Benzidine	92-87-5	19	U	19	1
10334	Benzo(a)anthracene	56-55-3	0.2	U	0.2	1
10334	Benzo(a)pyrene	50-32-8	0.3	U	0.3	1
10334	Benzo(b)fluoranthene	205-99-2	0.3	U	0.3	1
10334	Benzo(g,h,i)perylene	191-24-2	0.2	U	0.2	1
10334	Benzo(k)fluoranthene	207-08-9	0.3	U	0.3	1
10334	4-Bromophenyl-phenylether	101-55-3	0.3	U	0.3	1
10334	Butylbenzylphthalate	85-68-7	0.8	U	0.8	1
10334	Di-n-butylphthalate	84-74-2	0.5	U	0.5	1
10334	4-Chloro-3-methylphenol	59-50-7	0.3	U	0.3	1

DHR15 6628

Sample Description: HGR-IDW-W2 Composite Water
Dow Hanging Rock, OH

LLI Sample # WW 6526806
LLI Group # 1285786
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 14:50 by BW

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 12:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

IDWW2 SDG#: DHR15-06

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Semivolatiles EPA 625			ug/l		ug/l	
10334	bis(2-Chloroethoxy)methane	111-91-1	0.5	U	0.5	1
10334	bis(2-Chloroethyl)ether	111-44-4	0.4	U	0.4	1
10334	bis(2-Chloroisopropyl)ether	39638-32-9	0.3	U	0.3	1
10334	2-Chloronaphthalene	91-58-7	0.2	U	0.2	1
10334	2-Chlorophenol	95-57-8	0.3	U	0.3	1
10334	4-Chlorophenyl-phenylether	7005-72-3	0.3	U	0.3	1
10334	Chrysene	218-01-9	0.2	U	0.2	1
10334	Dibenz(a,h)anthracene	53-70-3	0.4	U	0.4	1
10334	1,2-Dichlorobenzene	95-50-1	0.3	U	0.3	1
10334	1,3-Dichlorobenzene	541-73-1	0.3	U	0.3	1
10334	1,4-Dichlorobenzene	106-46-7	0.3	U	0.3	1
10334	3,3'-Dichlorobenzidine	91-94-1	0.8	U	0.8	1
10334	2,4-Dichlorophenol	120-83-2	0.3	U	0.3	1
10334	Diethylphthalate	84-66-2	0.3	U	0.3	1
10334	2,4-Dimethylphenol	105-67-9	0.3	J	0.3	1
10334	Dimethylphthalate	131-11-3	1	U	1	1
10334	4,6-Dinitro-2-methylphenol	534-52-1	4	U	4	1
10334	2,4-Dinitrophenol	51-28-5	10	U	10	1
10334	2,4-Dinitrotoluene	121-14-2	0.4	U	0.4	1
10334	2,6-Dinitrotoluene	606-20-2	0.3	U	0.3	1
10334	1,2-Diphenylhydrazine	122-66-7	0.2	U	0.2	1
10334	bis(2-Ethylhexyl)phthalate	117-81-7	1	U	1	1
10334	Fluoranthene	206-44-0	0.3	U	0.3	1
10334	Fluorene	86-73-7	0.3	U	0.3	1
10334	Hexachlorobenzene	118-74-1	1	U	1	1
10334	Hexachlorobutadiene	87-68-3	0.8	U	0.8	1
10334	Hexachlorocyclopentadiene	77-47-4	2	U	2	1
10334	Hexachloroethane	67-72-1	0.4	U	0.4	1
10334	Indeno(1,2,3-cd)pyrene	193-39-5	0.3	U	0.3	1
10334	Isophorone	78-59-1	0.3	U	0.3	1
10334	Naphthalene	91-20-3	0.3	J	0.2	1
10334	Nitrobenzene	98-95-3	0.5	U	0.5	1
10334	2-Nitrophenol	88-75-5	0.5	J	0.4	1
10334	4-Nitrophenol	100-02-7	5	U	5	1
10334	N-Nitrosodimethylamine	62-75-9	2	U	2	1
10334	N-Nitroso-di-n-propylamine	621-64-7	0.4	U	0.4	1
10334	N-Nitrosodiphenylamine	86-30-6	0.3	U	0.3	1
10334	Di-n-octylphthalate	117-84-0	0.5	U	0.5	1
10334	Pentachlorophenol	87-86-5	3	U	3	1
10334	Phenanthrene	85-01-8	0.2	U	0.2	1
10334	Phenol	108-95-2	5	J	0.4	1
10334	Pyrene	129-00-0	0.2	U	0.2	1
10334	1,2,4-Trichlorobenzene	120-82-1	0.3	U	0.3	1
10334	2,4,6-Trichlorophenol	88-06-2	0.7	U	0.7	1
Trial ID: RE						
10334	Acenaphthene	83-32-9	0.3	U	0.3	1
10334	Acenaphthylene	208-96-8	0.3	U	0.3	1
10334	Anthracene	120-12-7	0.2	U	0.2	1
10334	Benzidine	92-87-5	19	U	19	1
10334	Benzo(a)anthracene	56-55-3	0.2	U	0.2	1

DHR15 0021

Sample Description: HGR-IDW-W2 Composite Water
Dow Hanging Rock, OH

LLI Sample # WW 6526806
LLI Group # 1285786
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 14:50 by BW

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 12:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

IDWW2 SDG#: DHR15-06

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Semivolatiles EPA 625			ug/l		ug/l	
10334	Benzo(a)pyrene	50-32-8	0.3	U	0.3	1
10334	Benzo(b)fluoranthene	205-99-2	0.3	U	0.3	1
10334	Benzo(g,h,i)perylene	191-24-2	0.2	U	0.2	1
10334	Benzo(k)fluoranthene	207-08-9	0.3	U	0.3	1
10334	4-Bromophenyl-phenylether	101-55-3	0.3	U	0.3	1
10334	Butylbenzylphthalate	85-68-7	0.8	U	0.8	1
10334	Di-n-butylphthalate	84-74-2	0.5	U	0.5	1
10334	4-Chloro-3-methylphenol	59-50-7	0.3	U	0.3	1
10334	bis(2-Chloroethoxy)methane	111-91-1	0.5	U	0.5	1
10334	bis(2-Chloroethyl)ether	111-44-4	0.4	U	0.4	1
10334	bis(2-Chloroisopropyl)ether	39638-32-9	0.3	U	0.3	1
10334	2-Chloronaphthalene	91-58-7	0.2	U	0.2	1
10334	2-Chlorophenol	95-57-8	0.3	U	0.3	1
10334	4-Chlorophenyl-phenylether	7005-72-3	0.3	U	0.3	1
10334	Chrysene	218-01-9	0.2	U	0.2	1
10334	Dibenz(a,h)anthracene	53-70-3	0.4	U	0.4	1
10334	1,2-Dichlorobenzene	95-50-1	0.3	U	0.3	1
10334	1,3-Dichlorobenzene	541-73-1	0.3	U	0.3	1
10334	1,4-Dichlorobenzene	106-46-7	0.3	U	0.3	1
10334	3,3'-Dichlorobenzidine	91-94-1	0.8	U	0.8	1
10334	2,4-Dichlorophenol	120-83-2	0.3	U	0.3	1
10334	Diethylphthalate	84-66-2	0.3	U	0.3	1
10334	2,4-Dimethylphenol	105-67-9	0.4	J	0.3	1
10334	Dimethylphthalate	131-11-3	0.9	U	0.9	1
10334	4,6-Dinitro-2-methylphenol	534-52-1	4	U	4	1
10334	2,4-Dinitrophenol	51-28-5	9	U	9	1
10334	2,4-Dinitrotoluene	121-14-2	0.4	U	0.4	1
10334	2,6-Dinitrotoluene	606-20-2	0.3	U	0.3	1
10334	1,2-Diphenylhydrazine	122-66-7	0.2	U	0.2	1
10334	bis(2-Ethylhexyl)phthalate	117-81-7	0.9	U	0.9	1
10334	Fluoranthene	206-44-0	0.3	U	0.3	1
10334	Fluorene	86-73-7	0.3	U	0.3	1
10334	Hexachlorobenzene	118-74-1	0.9	U	0.9	1
10334	Hexachlorobutadiene	87-68-3	0.8	U	0.8	1
10334	Hexachlorocyclopentadiene	77-47-4	2	U	2	1
10334	Hexachloroethane	67-72-1	0.4	U	0.4	1
10334	Indeno(1,2,3-cd)pyrene	193-39-5	0.3	U	0.3	1
10334	Isophorone	78-59-1	0.3	U	0.3	1
10334	Naphthalene	91-20-3	0.3	J	0.2	1
10334	Nitrobenzene	98-95-3	0.5	U	0.5	1
10334	2-Nitrophenol	88-75-5	0.6	J	0.4	1
10334	4-Nitrophenol	100-02-7	5	U	5	1
10334	N-Nitrosodimethylamine	62-75-9	2	U	2	1
10334	N-Nitroso-di-n-propylamine	621-64-7	0.4	U	0.4	1
10334	N-Nitrosodiphenylamine	86-30-6	0.3	U	0.3	1
10334	Di-n-octylphthalate	117-84-0	0.5	U	0.5	1
10334	Pentachlorophenol	87-86-5	3	U	3	1
10334	Phenanthrene	85-01-8	0.2	U	0.2	1
10334	Phenol	108-95-2	8		0.4	1
10334	Pyrene	129-00-0	0.2	U	0.2	1
10334	1,2,4-Trichlorobenzene	120-82-1	0.3	U	0.3	1

1DHR15 0822

Sample Description: HGR-IDW-W2 Composite Water
Dow Hanging Rock, OH

LLI Sample # WW 6526806
LLI Group # 1285786
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 14:50 by BW

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 12:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

IDWW2 SDG#: DHR15-06

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**EPA 625**		ug/l		ug/l	
10334	2,4,6-Trichlorophenol	88-06-2	0.7	U	0.7	1
	The recoveries of hexachlorocyclopentadiene, dimethylphthalate and diethylphthalate were outside of QC limits in the LCS. This sample was re-extracted outside of the method required holding time, and acceptable QC was observed.					
Metals	**EPA 1631 Revision E**		ng/l		ng/l	
01574	Low Level Mercury Water	7439-97-6	15.9		3.20	20
	The highest of 3 method blanks is being reported on the QC Summary.					
	EPA 200.7 rev 4.4		ug/l		ug/l	
07051	Chromium	7440-47-3	25.7		1.1	1
07053	Copper	7440-50-8	82.9		0.94	1
07055	Lead	7439-92-1	3.0	J	2.2	1
07061	Nickel	7440-02-0	1.2	J	0.95	1
07072	Zinc	7440-66-6	9.5	J	3.2	1
Wet Chemistry	**EPA 335.4**		mg/l		mg/l	
00237	Total Cyanide (water)	57-12-5	0.0050	U	0.0050	1
	SM20 5310 C		mg/l		mg/l	
00273	Total Organic Carbon	n.a.	1,130		25.0	50
	EPA 1664A		mg/l		mg/l	
08079	HEM (oil & grease)	n.a.	2.9	J	1.4	1
	SM20 2540 D		mg/l		mg/l	
00206	Total Suspended Solids	n.a.	6.0	J	3.0	1
	SM20 5210 B		mg/l		mg/l	
00235	Biochemical Oxygen Demand	n.a.	1,800		8.0	10

BOD is typically derived from the average of those sample aliquots that produce 5-day dissolved oxygen depletion into a method-defined acceptable range. The BOD result above is derived from only the smallest of 5 sample aliquots that achieved this depletion. The other sample aliquots were excluded due to this sample's toxic effect on the BOD test microbes that metabolize organic waste material. Below are the 5 aliquots with their corresponding calculated BOD values:

% of diluted sample	BOD result, mg/l
0.067	1800 *
0.167	739
0.333	646
1.00	307
1.67	240

DHR15 0023

Sample Description: HGR-IDW-W2 Composite Water
Dow Hanging Rock, OH

LLI Sample # WW 6526806
LLI Group # 1285786
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 14:50 by BW

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 12:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

IDWW2 SDG#: DHR15-06

General Sample Comments

The temperature of the temperature blank bottle(s) for the metals, LL Hg and Cyanide upon receipt at the lab was 6.3 C using a Hg thermometer. The sample bottles were then measured using an IR thermometer and were recorded at 6.8-7.5 C.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10371	EPA 624 water	EPA 624	1	M120241AA	01/24/2012 19:25	Linda C Pape	1
10334	Method 625	EPA 625	1	12021WAD625	01/23/2012 21:33	Holly Berry	1
10334	Method 625	EPA 625	2	12025WAE625	01/27/2012 04:57	Holly Berry	1
08108	625 Water Extraction	EPA 625	1	12021WAD625	01/22/2012 22:30	Nicholas W Shroyer	1
08108	625 Water Extraction	EPA 625	2	12025WAE625	01/26/2012 02:30	Sherry L Morrow	1
01574	Low Level Mercury Water	EPA 1631 Revision E	1	120251573002	01/26/2012 21:50	Parker D Lindstrom	20
07051	Chromium	EPA 200.7 rev 4.4	1	120205716002	01/23/2012 10:34	Damary Valentin	1
07053	Copper	EPA 200.7 rev 4.4	1	120205716002	01/23/2012 10:34	Damary Valentin	1
07055	Lead	EPA 200.7 rev 4.4	1	120205716002	01/23/2012 10:34	Damary Valentin	1
07061	Nickel	EPA 200.7 rev 4.4	1	120205716002	01/23/2012 10:34	Damary Valentin	1
07072	Zinc	EPA 200.7 rev 4.4	1	120205716002	01/23/2012 10:34	Damary Valentin	1
01573	Low Level Hg Digestion Water	EPA 1631 Revision E	1	120251573002	01/25/2012 14:00	Parker D Lindstrom	1
05716	EPA 600 ICP Digest (tot rec)	EPA 200.7 rev 4.4	1	120205716002	01/22/2012 22:30	Annamaria Stipkovits	1
00237	Total Cyanide (water)	EPA 335.4	1	12020102101A	01/23/2012 09:59	K Robert Caulfeild-James	1
00273	Total Organic Carbon	SM20 5310 C	1	12024049502A	01/24/2012 05:00	James S Mathiot	50
00492	Cyanide Water Distillation	EPA 335.4	1	12020102101A	01/20/2012 08:40	Nancy J Shoop	1
08079	HEM (oil & grease)	EPA 1664A	1	12026807901A	01/26/2012 06:18	Noah M Rainbow	1
00206	Total Suspended Solids	SM20 2540 D	1	12020020601A	01/20/2012 09:28	Bronson L Cole	1
00235	Biochemical Oxygen Demand	SM20 5210 B	1	12020023501A	01/20/2012 07:12	Susan E Hibner	10

DHR15 0024

Sample Description: HGR-IDW-W3 Composite Water
Dow Hanging Rock, OH

LLI Sample # WW 6526807
LLI Group # 1285786
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 15:10 by BW

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 12:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

IDWW3 SDG#: DHR15-07*

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Volatiles	**EPA 624**		ug/l		ug/l	
10371	Acrolein	107-02-8	10	U	10	1
10371	Acrylonitrile	107-13-1	10	U	10	1
10371	Benzene	71-43-2	0.9	U	0.9	1
10371	Bromodichloromethane	75-27-4	0.7	U	0.7	1
10371	Bromoform	75-25-2	0.8	U	0.8	1
10371	Bromomethane	74-83-9	2	U	2	1
10371	Carbon Tetrachloride	56-23-5	1	U	1	1
10371	Chlorobenzene	108-90-7	0.8	U	0.8	1
10371	Chloroethane	75-00-3	2	U	2	1
10371	2-Chloroethyl Vinyl Ether	110-75-8	2	U	2	1
	2-Chloroethyl vinyl ether may not be recovered if acid was used to preserve this sample.					
10371	Chloroform	67-66-3	1	J	1	1
10371	Chloromethane	74-87-3	2	U	2	1
10371	Dibromochloromethane	124-48-1	1	U	1	1
10371	1,2-Dichlorobenzene	95-50-1	1	U	1	1
10371	1,3-Dichlorobenzene	541-73-1	1	U	1	1
10371	1,4-Dichlorobenzene	106-46-7	1	U	1	1
10371	1,1-Dichloroethane	75-34-3	1	U	1	1
10371	1,2-Dichloroethane	107-06-2	1	U	1	1
10371	1,1-Dichloroethene	75-35-4	0.9	U	0.9	1
10371	cis-1,2-Dichloroethene	156-59-2	1	U	1	1
10371	trans-1,2-Dichloroethene	156-60-5	1	U	1	1
10371	1,2-Dichloropropane	78-87-5	1	U	1	1
10371	cis-1,3-Dichloropropene	10061-01-5	1	U	1	1
10371	trans-1,3-Dichloropropene	10061-02-6	0.6	U	0.6	1
10371	Ethylbenzene	100-41-4	0.8	U	0.8	1
10371	Methylene Chloride	75-09-2	2	U	2	1
10371	1,1,2,2-Tetrachloroethane	79-34-5	1	U	1	1
10371	Tetrachloroethene	127-18-4	1	U	1	1
10371	Toluene	108-88-3	2	J	0.8	1
10371	1,1,1-Trichloroethane	71-55-6	1	U	1	1
10371	1,1,2-Trichloroethane	79-00-5	1	U	1	1
10371	Trichloroethene	79-01-6	1	U	1	1
10371	Trichlorofluoromethane	75-69-4	2	U	2	1
10371	Vinyl Chloride	75-01-4	2	U	2	1
GC/MS Semivolatiles	**EPA 625**		ug/l		ug/l	
10334	Acenaphthene	83-32-9	0.3	U	0.3	1
10334	Acenaphthylene	208-96-8	0.3	U	0.3	1
10334	Anthracene	120-12-7	0.2	U	0.2	1
10334	Benzidine	92-87-5	19	U	19	1
10334	Benzo(a)anthracene	56-55-3	0.2	U	0.2	1
10334	Benzo(a)pyrene	50-32-8	0.3	U	0.3	1
10334	Benzo(b)fluoranthene	205-99-2	0.3	U	0.3	1
10334	Benzo(g,h,i)perylene	191-24-2	0.2	U	0.2	1
10334	Benzo(k)fluoranthene	207-08-9	0.3	U	0.3	1
10334	4-Bromophenyl-phenylether	101-55-3	0.3	U	0.3	1
10334	Butylbenzylphthalate	85-68-7	0.8	U	0.8	1
10334	Di-n-butylphthalate	84-74-2	0.5	U	0.5	1
10334	4-Chloro-3-methylphenol	59-50-7	0.3	U	0.3	1

DHR15 0825

Sample Description: HGR-IDW-W3 Composite Water
Dow Hanging Rock, OH

LLI Sample # WW 6526807
LLI Group # 1285786
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 15:10 by BW

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 12:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

IDWW3 SDG#: DHR15-07*

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Semivolatiles EPA 625			ug/l		ug/l	
10334	bis(2-Chloroethoxy)methane	111-91-1	0.5	U	0.5	1
10334	bis(2-Chloroethyl)ether	111-44-4	0.4	U	0.4	1
10334	bis(2-Chloroisopropyl)ether	39638-32-9	0.3	U	0.3	1
10334	2-Chloronaphthalene	91-58-7	0.2	U	0.2	1
10334	2-Chlorophenol	95-57-8	0.3	U	0.3	1
10334	4-Chlorophenyl-phenylether	7005-72-3	0.3	U	0.3	1
10334	Chrysene	218-01-9	0.2	U	0.2	1
10334	Dibenz(a,h)anthracene	53-70-3	0.4	U	0.4	1
10334	1,2-Dichlorobenzene	95-50-1	0.3	U	0.3	1
10334	1,3-Dichlorobenzene	541-73-1	0.3	U	0.3	1
10334	1,4-Dichlorobenzene	106-46-7	0.3	U	0.3	1
10334	3,3'-Dichlorobenzidine	91-94-1	0.8	U	0.8	1
10334	2,4-Dichlorophenol	120-83-2	0.3	U	0.3	1
10334	Diethylphthalate	84-66-2	0.3	U	0.3	1
10334	2,4-Dimethylphenol	105-67-9	0.3	U	0.3	1
10334	Dimethylphthalate	131-11-3	0.9	U	0.9	1
10334	4,6-Dinitro-2-methylphenol	534-52-1	4	U	4	1
10334	2,4-Dinitrophenol	51-28-5	9	U	9	1
10334	2,4-Dinitrotoluene	121-14-2	0.4	U	0.4	1
10334	2,6-Dinitrotoluene	606-20-2	0.3	U	0.3	1
10334	1,2-Diphenylhydrazine	122-66-7	0.2	U	0.2	1
10334	bis(2-Ethylhexyl)phthalate	117-81-7	0.9	U	0.9	1
10334	Fluoranthene	206-44-0	0.3	U	0.3	1
10334	Fluorene	86-73-7	0.3	U	0.3	1
10334	Hexachlorobenzene	118-74-1	0.9	U	0.9	1
10334	Hexachlorobutadiene	87-68-3	0.8	U	0.8	1
10334	Hexachlorocyclopentadiene	77-47-4	2	U	2	1
10334	Hexachloroethane	67-72-1	0.4	U	0.4	1
10334	Indeno(1,2,3-cd)pyrene	193-39-5	0.3	U	0.3	1
10334	Isophorone	78-59-1	0.3	U	0.3	1
10334	Naphthalene	91-20-3	0.2	U	0.2	1
10334	Nitrobenzene	98-95-3	0.5	U	0.5	1
10334	2-Nitrophenol	88-75-5	1	J	0.4	1
10334	4-Nitrophenol	100-02-7	5	U	5	1
10334	N-Nitrosodimethylamine	62-75-9	2	U	2	1
10334	N-Nitroso-di-n-propylamine	621-64-7	0.4	U	0.4	1
10334	N-Nitrosodiphenylamine	86-30-6	0.3	U	0.3	1
10334	Di-n-octylphthalate	117-84-0	0.5	U	0.5	1
10334	Pentachlorophenol	87-86-5	3	U	3	1
10334	Phenanthrene	85-01-8	0.2	U	0.2	1
10334	Phenol	108-95-2	0.4	U	0.4	1
10334	Pyrene	129-00-0	0.2	U	0.2	1
10334	1,2,4-Trichlorobenzene	120-82-1	0.3	U	0.3	1
10334	2,4,6-Trichlorophenol	88-06-2	0.7	U	0.7	1
Trial ID: RE						
10334	Acenaphthene	83-32-9	0.3	U	0.3	1
10334	Acenaphthylene	208-96-8	0.3	U	0.3	1
10334	Anthracene	120-12-7	0.2	U	0.2	1
10334	Benzidine	92-87-5	19	U	19	1
10334	Benzo(a)anthracene	56-55-3	0.2	U	0.2	1

DHR15 6626

Sample Description: HGR-IDW-W3 Composite Water
Dow Hanging Rock, OH

LLI Sample # WW 6526807
LLI Group # 1285786
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 15:10 by BW

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 12:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

IDWW3 SDG#: DHR15-07*

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Semivolatiles EPA 625			ug/l		ug/l	
10334	Benzo(a)pyrene	50-32-8	0.3	U	0.3	1
10334	Benzo(b)fluoranthene	205-99-2	0.3	U	0.3	1
10334	Benzo(g,h,i)perylene	191-24-2	0.2	U	0.2	1
10334	Benzo(k)fluoranthene	207-08-9	0.3	U	0.3	1
10334	4-Bromophenyl-phenylether	101-55-3	0.3	U	0.3	1
10334	Butylbenzylphthalate	85-68-7	0.8	U	0.8	1
10334	Di-n-butylphthalate	84-74-2	0.5	U	0.5	1
10334	4-Chloro-3-methylphenol	59-50-7	0.3	U	0.3	1
10334	bis(2-Chloroethoxy)methane	111-91-1	0.5	U	0.5	1
10334	bis(2-Chloroethyl)ether	111-44-4	0.4	U	0.4	1
10334	bis(2-Chloroisopropyl)ether	39638-32-9	0.3	U	0.3	1
10334	2-Chloronaphthalene	91-58-7	0.2	U	0.2	1
10334	2-Chlorophenol	95-57-8	0.3	U	0.3	1
10334	4-Chlorophenyl-phenylether	7005-72-3	0.3	U	0.3	1
10334	Chrysene	218-01-9	0.2	U	0.2	1
10334	Dibenz(a,h)anthracene	53-70-3	0.4	U	0.4	1
10334	1,2-Dichlorobenzene	95-50-1	0.3	U	0.3	1
10334	1,3-Dichlorobenzene	541-73-1	0.3	U	0.3	1
10334	1,4-Dichlorobenzene	106-46-7	0.3	U	0.3	1
10334	3,3'-Dichlorobenzidine	91-94-1	0.8	U	0.8	1
10334	2,4-Dichlorophenol	120-83-2	0.3	U	0.3	1
10334	Diethylphthalate	84-66-2	0.3	U	0.3	1
10334	2,4-Dimethylphenol	105-67-9	0.3	U	0.3	1
10334	Dimethylphthalate	131-11-3	0.9	U	0.9	1
10334	4,6-Dinitro-2-methylphenol	534-52-1	4	U	4	1
10334	2,4-Dinitrophenol	51-28-5	9	U	9	1
10334	2,4-Dinitrotoluene	121-14-2	0.4	U	0.4	1
10334	2,6-Dinitrotoluene	606-20-2	0.3	U	0.3	1
10334	1,2-Diphenylhydrazine	122-66-7	0.2	U	0.2	1
10334	bis(2-Ethylhexyl)phthalate	117-81-7	0.9	U	0.9	1
10334	Fluoranthene	206-44-0	0.3	U	0.3	1
10334	Fluorene	86-73-7	0.3	U	0.3	1
10334	Hexachlorobenzene	118-74-1	0.9	U	0.9	1
10334	Hexachlorobutadiene	87-68-3	0.8	U	0.8	1
10334	Hexachlorocyclopentadiene	77-47-4	2	U	2	1
10334	Hexachloroethane	67-72-1	0.4	U	0.4	1
10334	Indeno(1,2,3-cd)pyrene	193-39-5	0.3	U	0.3	1
10334	Isophorone	78-59-1	0.3	U	0.3	1
10334	Naphthalene	91-20-3	0.2	J	0.2	1
10334	Nitrobenzene	98-95-3	0.5	U	0.5	1
10334	2-Nitrophenol	88-75-5	0.4	U	0.4	1
10334	4-Nitrophenol	100-02-7	5	U	5	1
10334	N-Nitrosodimethylamine	62-75-9	2	U	2	1
10334	N-Nitroso-di-n-propylamine	621-64-7	0.4	U	0.4	1
10334	N-Nitrosodiphenylamine	86-30-6	0.3	U	0.3	1
10334	Di-n-octylphthalate	117-84-0	0.5	U	0.5	1
10334	Pentachlorophenol	87-86-5	3	U	3	1
10334	Phenanthrene	85-01-8	0.2	U	0.2	1
10334	Phenol	108-95-2	0.4	U	0.4	1
10334	Pyrene	129-00-0	0.2	U	0.2	1
10334	1,2,4-Trichlorobenzene	120-82-1	0.3	U	0.3	1

DHR15 6927

Sample Description: HGR-IDW-W3 Composite Water
Dow Hanging Rock, OH

LLI Sample # WW 6526807
LLI Group # 1285786
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 15:10 by BW

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 12:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

IDWW3 SDG#: DHR15-07*

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**EPA 625**		**ug/l**		**ug/l**	
10334	2,4,6-Trichlorophenol	88-06-2	0.7	U	0.7	1
	The recoveries of hexachlorocyclopentadiene, dimethylphthalate and diethylphthalate were outside of QC limits in the LCS. This sample was re-extracted outside of the method required holding time, and acceptable QC was observed.					
Metals	**EPA 1631 Revision E**		**ng/l**		**ng/l**	
01574	Low Level Mercury Water	7439-97-6	1.60	U	1.60	10
	The highest of 3 method blanks is being reported on the QC Summary. Reporting limits were raised due to interference from the sample matrix.					
	EPA 200.7 rev 4.4		**ug/l**		**ug/l**	
07051	Chromium	7440-47-3	1.1	U	1.1	1
07053	Copper	7440-50-8	1.4	J	0.94	1
07055	Lead	7439-92-1	2.2	U	2.2	1
07061	Nickel	7440-02-0	5.6	J	0.95	1
07072	Zinc	7440-66-6	60.5		3.2	1
Wet Chemistry	**EPA 335.4**		**mg/l**		**mg/l**	
00237	Total Cyanide (water)	57-12-5	0.0050	U	0.0050	1
	SM20 5310 C		**mg/l**		**mg/l**	
00273	Total Organic Carbon	n.a.	6.8		0.50	1
	EPA 1664A		**mg/l**		**mg/l**	
08079	HEM (oil & grease)	n.a.	1.4	U	1.4	1
	SM20 2540 D		**mg/l**		**mg/l**	
00206	Total Suspended Solids	n.a.	16.4		3.0	1
	SM20 5210 B		**mg/l**		**mg/l**	
00235	Biochemical Oxygen Demand	n.a.	12.0		0.80	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
10371	EPA 624 water	EPA 624	1	M120241AA	01/24/2012 19:51	Linda C Pape	1
10334	Method 625	EPA 625	1	12021WAD625	01/23/2012 22:04	Holly Berry	1
10334	Method 625	EPA 625	2	12025WAE625	01/27/2012 05:27	Holly Berry	1
08108	625 Water Extraction	EPA 625	1	12021WAD625	01/22/2012 22:30	Nicholas W Shroyer	1

DHR15 0028

Sample Description: HGR-IDW-W3 Composite Water
Dow Hanging Rock, OH

LLI Sample # WW 6526807
LLI Group # 1285786
Account # 11372

Project Name: Dow Hanging Rock, OH

Collected: 01/18/2012 15:10 by BW

Submitted: 01/19/2012 09:45
Reported: 01/31/2012 12:03

CH2M Hill, Inc.
PO Box 241329
Denver CO 80224

IDWW3 SDG#: DHR15-07*

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08108	625 Water Extraction	EPA 625	2	12025WAE625	01/26/2012 02:30	Sherry L Morrow	1
01574	Low Level Mercury Water	EPA 1631 Revision E	1	120251573002	01/26/2012 22:39	Parker D Lindstrom	10
07051	Chromium	EPA 200.7 rev 4.4	1	120205716002	01/23/2012 10:38	Damary Valentin	1
07053	Copper	EPA 200.7 rev 4.4	1	120205716002	01/23/2012 10:38	Damary Valentin	1
07055	Lead	EPA 200.7 rev 4.4	1	120205716002	01/23/2012 10:38	Damary Valentin	1
07061	Nickel	EPA 200.7 rev 4.4	1	120205716002	01/23/2012 10:38	Damary Valentin	1
07072	Zinc	EPA 200.7 rev 4.4	1	120205716002	01/23/2012 10:38	Damary Valentin	1
01573	Low Level Hg Digestion Water	EPA 1631 Revision E	1	120251573002	01/25/2012 14:00	Parker D Lindstrom	1
05716	EPA 600 ICP Digest (tot rec)	EPA 200.7 rev 4.4	1	120205716002	01/22/2012 22:30	Annamaria Stipkovits	1
00237	Total Cyanide (water)	EPA 335.4	1	12020102101A	01/23/2012 10:00	K Robert Caulfeild-James	1
00273	Total Organic Carbon	SM20 5310 C	1	12024049502A	01/24/2012 05:08	James S Mathiot	1
00492	Cyanide Water Distillation	EPA 335.4	1	12020102101A	01/20/2012 08:40	Nancy J Shoop	1
08079	HEM (oil & grease)	EPA 1664A	1	12026807901A	01/26/2012 06:18	Noah M Rainbow	1
00206	Total Suspended Solids	SM20 2540 D	1	12020020601A	01/20/2012 09:28	Bronson L Cole	1
00235	Biochemical Oxygen Demand	SM20 5210 B	1	12020023501A	01/20/2012 07:12	Susan E Hibner	1

DHR15 0029

Volatiles by GC/MS Data

Case Narrative
Conformance/Non-Conformance
Summary

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Case Narrative

CLIENT: CH2M Hill, Inc.
SDG: DHR15

GC/MS Volatiles

Fraction: Volatiles by GC/MS

EPA 624 water

Sample #	Client ID	Matrix Liquid	Matrix Solid	DF	Comments
6526799	HGR-011812-TB02	X		1	Trip Blank
6526800	HGR-011812-FD01	X		1	Field Duplicate Sample
6526801	WW2-0000-011812	X		1	
6526802	WW5-0000-011812	X		1	Unspiked
6526803	WW5-0000-011812 MS	X		1	Matrix Spike
6526804	WW5-0000-011812 MSD	X		1	Matrix Spike Duplicate
6526805	SG-0000-011812	X		1	
6526806	HGR-IDW-W2	X		1	
6526807	HGR-IDW-W3	X		1	

See QC Reference List for Associated Batch QC Samples

SAMPLE RECEIPT:

Samples were received in good condition and within temperature requirements.

HOLDING TIME:

All holding times were met.

PREPARATION/EXTRACTION/DIGESTION:

No problems were encountered.

CALIBRATION/STANDARDIZATION:

All criteria were met.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

MS/MSD

Please note that US EPA Methods for organic compounds do not require action by the laboratory based on out-of-specification MS/MSD results.

DHR15 9832

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Case Narrative

CLIENT: CH2M Hill, Inc.
SDG: DHR15

GC/MS Volatiles

Fraction: Volatiles by GC/MS

SAMPLE ANALYSIS:

No problems were encountered with the analysis of the samples.

DATA INTERPRETATION:

No further interpretation is necessary for the data submitted.

Abbreviation Key

UNSPK = Unspiked (for MS/MSD)	LOQ = Limit of Quantitation
MS = Matrix Spike	MDL = Method Detection Limit
MSD = Matrix Spike Duplicate	ND = Not Detected
BKG = Background (for Duplicate)	J = Estimated Value
D = Duplicate (DUP)	E= out of calibration range
LCS = Lab Control Sample	RE = Repreparation/Reanalysis
LCSD = Lab Control Sample Duplicate	* = Out of Specification

Narrative Reviewed and Approved 2/2/12 (Date) by Kathy J. Fair

Kathy J. Fair
Specialist

DHR15 0033

Quality Control and Calibration Summary Forms

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LOQ/MDL Summary
GC/MS Volatiles

SDG: DHR15

Fraction: Volatiles by GC/MS

10371: EPA 624 water Analyte Name	Default MDL	Default LOQ	Units
Chloromethane	2	5	ug/l
Vinyl Chloride	2	5	ug/l
Bromomethane	2	5	ug/l
Chloroethane	2	5	ug/l
Trichlorofluoromethane	2	5	ug/l
Acrolein	10	50	ug/l
1,1-Dichloroethene	0.9	5	ug/l
Methylene Chloride	2	5	ug/l
Acrylonitrile	10	50	ug/l
trans-1,2-Dichloroethene	1	5	ug/l
1,1-Dichloroethane	1	5	ug/l
cis-1,2-Dichloroethene	1	5	ug/l
Chloroform	1	5	ug/l
1,1,1-Trichloroethane	1	5	ug/l
Carbon Tetrachloride	1	5	ug/l
Benzene	0.9	5	ug/l
1,2-Dichloroethane	1	5	ug/l
Trichloroethene	1	5	ug/l
1,2-Dichloropropane	1	5	ug/l
Bromodichloromethane	0.7	5	ug/l
2-Chloroethyl Vinyl Ether	2	10	ug/l
cis-1,3-Dichloropropene	1	5	ug/l
Toluene	0.8	5	ug/l
trans-1,3-Dichloropropene	0.6	5	ug/l
1,1,2-Trichloroethane	1	5	ug/l
Tetrachloroethene	1	5	ug/l
Dibromochloromethane	1	5	ug/l
Chlorobenzene	0.8	5	ug/l
Ethylbenzene	0.8	5	ug/l
Bromoform	0.8	5	ug/l
1,1,2,2-Tetrachloroethane	1	5	ug/l
1,3-Dichlorobenzene	1	5	ug/l
1,4-Dichlorobenzene	1	5	ug/l
1,2-Dichlorobenzene	1	5	ug/l

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Quality Control Reference List
GC/MS Volatiles

CLIENT: CH2M Hill, Inc.
SDG: DHR15

Fraction: Volatiles by GC/MS

Analysis	Batch Number	Sample Number	Analysis Date
EPA 624 water	M120241AA	VBLKM96	01/24/2012 12:12:00
		LCSM96	01/24/2012 12:38:00
		6526799	01/24/2012 14:19:00
		6526800	01/24/2012 16:53:00
		6526801	01/24/2012 17:18:00
		6526802 UNSPK	01/24/2012 17:43:00
		6526803 MS	01/24/2012 18:09:00
		6526804 MSD	01/24/2012 18:34:00
		6526805	01/24/2012 19:00:00
		6526806	01/24/2012 19:25:00
		6526807	01/24/2012 19:51:00

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Quality Control Summary
Method Blank
GC/MS Volatiles
SDG: DHR15
Matrix: LIQUID

Fraction: Volatiles by GC/MS

M120241AA / VBLKM96 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Chloromethane	01/24/12	N.D.	ug/l	2	5
Vinyl Chloride	01/24/12	N.D.	ug/l	2	5
Bromomethane	01/24/12	N.D.	ug/l	2	5
Chloroethane	01/24/12	N.D.	ug/l	2	5
Trichlorofluoromethane	01/24/12	N.D.	ug/l	2	5
Acrolein	01/24/12	N.D.	ug/l	10	50
1,1-Dichloroethene	01/24/12	N.D.	ug/l	0.9	5
Methylene Chloride	01/24/12	N.D.	ug/l	2	5
Acrylonitrile	01/24/12	N.D.	ug/l	10	50
trans-1,2-Dichloroethene	01/24/12	N.D.	ug/l	1	5
1,1-Dichloroethane	01/24/12	N.D.	ug/l	1	5
cis-1,2-Dichloroethene	01/24/12	N.D.	ug/l	1	5
Chloroform	01/24/12	N.D.	ug/l	1	5
1,1,1-Trichloroethane	01/24/12	N.D.	ug/l	1	5
Carbon Tetrachloride	01/24/12	N.D.	ug/l	1	5
Benzene	01/24/12	N.D.	ug/l	0.9	5
1,2-Dichloroethane	01/24/12	N.D.	ug/l	1	5
Trichloroethene	01/24/12	N.D.	ug/l	1	5
1,2-Dichloropropane	01/24/12	N.D.	ug/l	1	5
Bromodichloromethane	01/24/12	N.D.	ug/l	0.7	5
2-Chloroethyl Vinyl Ether	01/24/12	N.D.	ug/l	2	10
cis-1,3-Dichloropropene	01/24/12	N.D.	ug/l	1	5
Toluene	01/24/12	N.D.	ug/l	0.8	5
trans-1,3-Dichloropropene	01/24/12	N.D.	ug/l	0.6	5
1,1,2-Trichloroethane	01/24/12	N.D.	ug/l	1	5
Tetrachloroethene	01/24/12	N.D.	ug/l	1	5
Dibromochloromethane	01/24/12	N.D.	ug/l	1	5
Chlorobenzene	01/24/12	N.D.	ug/l	0.8	5
Ethylbenzene	01/24/12	N.D.	ug/l	0.8	5
Bromoform	01/24/12	N.D.	ug/l	0.8	5
1,1,2,2-Tetrachloroethane	01/24/12	N.D.	ug/l	1	5
1,3-Dichlorobenzene	01/24/12	N.D.	ug/l	1	5
1,4-Dichlorobenzene	01/24/12	N.D.	ug/l	1	5
1,2-Dichlorobenzene	01/24/12	N.D.	ug/l	1	5

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Quality Control Summary
Surrogates
GC/MS Volatiles
SDG: DHR15
Matrix: LIQUID

Fraction: Volatiles by GC/MS

M120241AA	1,2-Dichloroethane-d4		Fluorobenzene		4-Bromofluorobenzene	
	Spike Added	30 ug/l	Spike Added	30 ug/l	Spike Added	30 ug/l
Sample	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits
VBLKM96	81	76 - 114	99	80 - 120	101	86 - 115
LCSM96	81	76 - 114	101	80 - 120	102	86 - 115
6526799	81	76 - 114	99	80 - 120	99	86 - 115
6526800	82	76 - 114	101	80 - 120	101	86 - 115
6526801	80	76 - 114	99	80 - 120	100	86 - 115
6526802	81	76 - 114	100	80 - 120	98	86 - 115
6526803 MS	81	76 - 114	102	80 - 120	102	86 - 115
6526804 MSD	81	76 - 114	102	80 - 120	103	86 - 115
6526805	80	76 - 114	100	80 - 120	101	86 - 115
6526806	84	76 - 114	98	80 - 120	103	86 - 115
6526807	81	76 - 114	99	80 - 120	102	86 - 115

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Quality Control Summary
Matrix Spike/Matrix Spike Duplicate

SDG: DHR15
Matrix: LIQUID

GC/MS Volatiles

Fraction: Volatiles by GC/MS

UNSPK: 6526802 MS: 6526803 MSD: 6526804 Analyte	Batch: **M120241AA** (Sample number(s): 6526799-6526807)								
	Spike Added ug/l	Unspiked Conc ug/l	MS Conc ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	%Rec Limits	%RPD	%RPD Limits
Chloromethane	20	N.D.	10.57	11.31	53 *	57 *	63-149	7	30
Vinyl Chloride	20	N.D.	13.58	13.53	68	68	66-146	0	30
Bromomethane	20	N.D.	14.67	14.47	73	72	63-134	1	30
Chloroethane	20	N.D.	15.5	15.45	78	77	65-138	0	30
Trichlorofluoromethane	20	N.D.	19.89	19.77	99	99	73-149	1	30
Acrolein	150	N.D.	137.14	137.78	91	92	40-128	0	30
1,1-Dichloroethene	20	N.D.	19.92	19.54	100	98	85-146	2	30
Methylene Chloride	20	N.D.	19.22	18.93	96	95	77-134	1	30
Acrylonitrile	100	N.D.	78.34	77.27	78	77	58-124	1	30
trans-1,2-Dichloroethene	20	N.D.	19.64	19.51	98	98	84-138	1	30
1,1-Dichloroethane	20	N.D.	19.72	19.48	99	97	79-141	1	30
cis-1,2-Dichloroethene	20	N.D.	19.86	19.44	99	97	81-134	2	30
Chloroform	20	N.D.	17.24	17.02	86	85	82-132	1	30
1,1,1-Trichloroethane	20	N.D.	17.79	17.68	89	88	83-137	1	30
Carbon Tetrachloride	20	N.D.	18.6	18.54	93	93	76-147	0	30
Benzene	20	N.D.	20.38	20.44	102	102	83-132	0	30
1,2-Dichloroethane	20	N.D.	22.27	22.44	111	112	75-140	1	30
Trichloroethene	20	N.D.	21.01	20.77	105	104	86-131	1	30
1,2-Dichloropropane	20	N.D.	18.8	18.77	94	94	77-130	0	30
Bromodichloromethane	20	N.D.	20.87	20.81	104	104	78-128	0	30
2-Chloroethyl Vinyl Ether	20	N.D.	N.D.	N.D.	0 *	0 *	10-172	0	30
cis-1,3-Dichloropropene	20	N.D.	18.89	19.07	94	95	74-113	1	30
Toluene	20	N.D.	20.78	21.13	104	106	84-123	2	30
trans-1,3-Dichloropropene	20	N.D.	19.58	20.48	98	102	69-116	5	30
1,1,2-Trichloroethane	20	N.D.	20.37	20.42	102	102	85-121	0	30
Tetrachloroethene	20	N.D.	22.71	23.17	114	116	78-136	2	30
Dibromochloromethane	20	N.D.	21.14	21.44	106	107	72-128	1	30
Chlorobenzene	20	N.D.	20.27	21.08	101	105	82-121	4	30
Ethylbenzene	20	N.D.	21.41	21.63	107	108	82-124	1	30
Bromoform	20	N.D.	21.82	21.97	109	110	59-129	1	30
1,1,2,2-Tetrachloroethane	20	N.D.	21.52	21.65	108	108	84-116	1	30
1,3-Dichlorobenzene	20	N.D.	21.73	22.5	109	112	79-126	3	30
1,4-Dichlorobenzene	20	N.D.	21.83	22.28	109	111	79-126	2	30
1,2-Dichlorobenzene	20	N.D.	22.11	22.32	111	112	79-126	1	30

Results are being reported on an as received basis.

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate(LCSD)

SDG: DHR15
Matrix: LIQUID

GC/MS Volatiles

Fraction: Volatiles by GC/MS

LCS: LCSM96	Batch: **M120241AA** (Sample number(s): 6526799-6526807)							
Analyte	**Spike Added ug/l**	**LCS Conc ug/l**	**LCSD Conc ug/l**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Chloromethane	20	14.99		75		63-135		
Vinyl Chloride	20	16.05		80		62-129		
Bromomethane	20	16.56		83		61-128		
Chloroethane	20	16.05		80		61-128		
Trichlorofluoromethane	20	19.48		97		67-124		
Acrolein	150	140.86		94		53-126		
1,1-Dichloroethene	20	17.84		89		77-129		
Methylene Chloride	20	18.7		93		77-128		
Acrylonitrile	100	78.99		79		61-120		
trans-1,2-Dichloroethene	20	18.25		91		79-125		
1,1-Dichloroethane	20	18.46		92		75-130		
cis-1,2-Dichloroethene	20	18.66		93		78-125		
Chloroform	20	16.5		82		80-125		
1,1,1-Trichloroethane	20	16.32		82		74-127		
Carbon Tetrachloride	20	16.86		84		75-121		
Benzene	20	18.94		95		80-121		
1,2-Dichloroethane	20	21.06		105		72-138		
Trichloroethene	20	19.16		96		80-120		
1,2-Dichloropropane	20	17.85		89		78-121		
Bromodichloromethane	20	19.6		98		76-123		
2-Chloroethyl Vinyl Ether	20	17.48		87		47-128		
cis-1,3-Dichloropropene	20	19.02		95		79-120		
Toluene	20	19.85		99		80-120		
trans-1,3-Dichloropropene	20	19.87		99		74-120		
1,1,2-Trichloroethane	20	20.52		103		80-120		
Tetrachloroethene	20	20.84		104		77-127		
Dibromochloromethane	20	20.92		105		74-121		
Chlorobenzene	20	19.71		99		80-120		
Ethylbenzene	20	20.07		100		80-120		
Bromoform	20	22.02		110		63-123		
1,1,2,2-Tetrachloroethane	20	21.22		106		80-120		
1,3-Dichlorobenzene	20	21.06		105		78-124		
1,4-Dichlorobenzene	20	21.22		106		78-124		
1,2-Dichlorobenzene	20	21.53		108		78-125		

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.: DHR15

Lab File ID: mj09t01.d BFB Injection Date: 01/09/12

Instrument ID: HP06720 BFB Injection Time: 12:21

Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	18.72
75	30.0 - 60.0% of mass 95	43.56
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.86
173	Less than 2.0% of mass 174	0.00 (0.00)1
174	Greater than 50.0% of mass 95	80.53
175	5.0 - 9.0% of mass 174	5.83 (7.24)1
176	Greater than 95.0%, but less than 101.0% of mass 174	77.68 (96.47)1
177	5.0 - 9.0% of mass 176	5.06 (6.52)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD300	mj09i01.d	01/09/12	13:01
02	VSTD100	mj09i02.d	01/09/12	13:26
03	VSTD50	mj09i03.d	01/09/12	13:52
04	VSTD20	mj09i04.d	01/09/12	14:17
05	VSTD4	mj09i05.d	01/09/12	14:43
06	MDL001 - MDL001	mj09m01.d	01/09/12	15:08
07	VSTD20	mj09c01.d	01/09/12	15:33
08	VBLKM82	mj09b01.d	01/09/12	15:59
09	LCSM82	mj09l01.d	01/09/12	16:25
10	LCDM82	mj09l02.d	01/09/12	16:51
11	LCS1M82	mj09l03.d	01/09/12	17:16
12	LCD1M82	mj09l04.d	01/09/12	17:42
13	6516012	mj09s01.d	01/09/12	18:23
14	6514762	mj09s03.d	01/09/12	19:14
15	6514763	mj09s04.d	01/09/12	19:40
16	6514764	mj09s05.d	01/09/12	20:06
17	6516116	mj09s06.d	01/09/12	20:31
18	6516117	mj09s08.d	01/09/12	21:22
19	6516118	mj09s10.d	01/09/12	22:13
20	6516118DL	mj09s11.d	01/09/12	22:39
21	6516119	mj09s12.d	01/09/12	23:05
22	6516119DL	mj09s13.d	01/09/12	23:30

DHR15 5041

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.: DHR15

Lab File ID: mj09t01.d BFB Injection Date: 01/09/12

Instrument ID: HP06720 BFB Injection Time: 12:21

Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	18.72
75	30.0 - 60.0% of mass 95	43.56
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.86
173	Less than 2.0% of mass 174	0.00 (0.00)1
174	Greater than 50.0% of mass 95	80.53
175	5.0 - 9.0% of mass 174	5.83 (7.24)1
176	Greater than 95.0%, but less than 101.0% of mass 174	77.68 (96.47)1
177	5.0 - 9.0% of mass 176	5.06 (6.52)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
23	6516120	mj09s14.d	01/09/12	23:55
24	6516120DL	mj09s15.d	01/10/12	00:21
25	6516121	mj09s16.d	01/10/12	00:47
26	6516121DL	mj09s17.d	01/10/12	01:12
27	6516122DL	mj09s18.d	01/10/12	01:37
28	6516123	mj09s20.d	01/10/12	02:28
29	6516123DL	mj09s21.d	01/10/12	02:54
30	6516124	mj09s22.d	01/10/12	03:19
31	6516124DL	mj09s23.d	01/10/12	03:45
32	6516125	mj09s24.d	01/10/12	04:10
33	6516126	mj09s25.d	01/10/12	04:36
34	6516127	mj09s26.d	01/10/12	05:01
35	6516128	mj09s27.d	01/10/12	05:27
36	6516129	mj09s28.d	01/10/12	05:53
37	6516130	mj09s30.d	01/10/12	06:44
38	6516131	mj09s32.d	01/10/12	07:35
39	6516122	mj09s33.d	01/10/12	08:28

DHR15 0842

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.: DHR15

Lab File ID: mj24t01.d BFB Injection Date: 01/24/12

Instrument ID: HP06720 BFB Injection Time: 11:22

Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	19.18
75	30.0 - 60.0% of mass 95	46.11
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.61
173	Less than 2.0% of mass 174	0.00 (0.00)1
174	Greater than 50.0% of mass 95	87.31
175	5.0 - 9.0% of mass 174	6.36 (7.29)1
176	Greater than 95.0%, but less than 101.0% of mass 174	83.48 (95.61)1
177	5.0 - 9.0% of mass 176	5.08 (6.08)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD20	mj24c01.d	01/24/12	11:46
02	VBLKM96	mj24b01.d	01/24/12	12:12
03	LCSM96	mj24l01.d	01/24/12	12:38
04	6526264	mj24s01.d	01/24/12	13:29
05	6526264DL	mj24s02.d	01/24/12	13:54
06	6526799	mj24s03.d	01/24/12	14:19
07	6526265	mj24s04.d	01/24/12	14:45
08	6525012DL	mj24s05.d	01/24/12	15:10
09	6525016	mj24s07.d	01/24/12	16:01
10	6526843	mj24s08.d	01/24/12	16:27
11	6526800	mj24s09.d	01/24/12	16:53
12	6526801	mj24s10.d	01/24/12	17:18
13	6526802	mj24s11.d	01/24/12	17:43
14	6526803MS	mj24s12.d	01/24/12	18:09
15	6526804MSD	mj24s13.d	01/24/12	18:34
16	6526805	mj24s14.d	01/24/12	19:00
17	6526806	mj24s15.d	01/24/12	19:25
18	6526807	mj24s16.d	01/24/12	19:51
19	6526370	mj24s17.d	01/24/12	20:17
20	6528097	mj24s18.d	01/24/12	20:42
21	6527722	mj24s19.d	01/24/12	21:08
22	6527723	mj24s20.d	01/24/12	21:34

DHR15 0043

FORM V VOA

5A

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.: DHR15

Lab File ID: mj24t01.d BFB Injection Date: 01/24/12

Instrument ID: HP06720 BFB Injection Time: 11:22

Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	19.18
75	30.0 - 60.0% of mass 95	46.11
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of mass 95	6.61
173	Less than 2.0% of mass 174	0.00 (0.00)1
174	Greater than 50.0% of mass 95	87.31
175	5.0 - 9.0% of mass 174	6.36 (7.29)1
176	Greater than 95.0%, but less than 101.0% of mass 174	83.48 (95.61)1
177	5.0 - 9.0% of mass 176	5.08 (6.08)2

1-Value is % mass 174 2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
23	6527724	mj24s21.d	01/24/12	21:59
24	6527725	mj24s22.d	01/24/12	22:24
25	6526263	mj24s23.d	01/24/12	22:49

DHR15 0044

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP06720 Calibration Date(s): 01/09/12 01/09/12

Heated Purge: (Y/N) N Calibration Time(s): 13:01 14:43

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: DB-624 ID: .25

LAB FILE ID: RRF 4 = mj09i05.d RRF 20= mj09i04.d
RRF 50= mj09i03.d RRF100= mj09i02.d RRF300= mj09i01.d

COMPOUND	RRF 4	RRF 20	RRF 50	RRF100	RRF300	$\overline{RRF}$	% RSD	CAL. METHOD
Dichlorodifluoromethane	3.0538	3.1596	2.8527	3.0044	3.2374	3.0616	5	AVG
Chloromethane	0.8358	0.8367	0.7637	0.7746	0.7763	0.7974	4	AVG
Vinyl Chloride	2.3075	2.3251	2.0150	2.0793	2.0989	2.1651	7	AVG
Bromomethane	1.9000	1.8749	1.6153	1.6106	1.4739	1.6949	11	AVG
Chloroethane	1.0839	1.0955	0.9670	0.9777	0.8938	1.0036	8	AVG
Trichlorofluoromethane	2.5163	2.7475	2.4025	2.5293	2.5503	2.5492	5	AVG
Freon 123a	1.8498	1.8201	1.7089	1.7965	1.7652	1.7881	3	AVG
Acrolein	0.3242	0.3264	0.2766	0.2828	0.2691	0.2958	9	AVG
1,1-Dichloroethene	1.3797	1.3822	1.2488	1.2997	1.1864	1.2994	7	AVG
Freon 113	1.3457	1.4262	1.3457	1.4276	1.3212	1.3733	4	AVG
Acetone	0.1418	0.1436	0.1221	0.1246	0.1198	0.1304	9	AVG
Methyl Iodide	2.8069	2.9775	2.7783	2.9484	2.7680	2.8558	3	AVG
2-Propanol	0.1035	0.1186	0.1118	0.1083	0.1007	0.1086	7	AVG
Carbon Disulfide	4.7566	4.9558	4.6080	4.8341	4.5246	4.7358	4	AVG
Methylene Chloride	1.6186	1.6549	1.5176	1.5964	1.5166	1.5808	4	AVG
t-Butyl Alcohol	0.1328	0.1428	0.1314	0.1420	0.1357	0.1369	4	AVG
Acrylonitrile	0.7352	0.6950	0.5760	0.5716	0.5559	0.6267	13	AVG
trans-1,2-Dichloroethene	1.4972	1.5392	1.4315	1.5082	1.3652	1.4683	5	AVG
Methyl Tertiary Butyl Ether	3.9248	4.2151	3.9522	4.1236	3.9556	4.0343	3	AVG
n-Hexane	1.5450	1.4700	1.3736	1.4648	1.4176	1.4542	4	AVG
1,1-Dichloroethane	2.6351	2.7535	2.5469	2.6977	2.5682	2.6403	3	AVG
di-Isopropyl Ether	4.8292	5.0681	4.7482	5.0162	4.6876	4.8699	3	AVG
2-Chloro-1,3-Butadiene	2.2171	2.2144	2.0808	2.2238	2.0600	2.1592	4	AVG
Ethyl t-Butyl Ether	3.9434	4.3270	4.0700	4.3670	4.1562	4.1727	4	AVG
cis-1,2-Dichloroethene	1.6277	1.6487	1.5116	1.6057	1.4952	1.5778	4	AVG
2,2-Dichloropropane	2.2742	2.2312	2.0345	2.1250	2.0079	2.1346	5	AVG
2-Butanone	1.1775	0.8809	0.7407	0.7692	0.7709	0.8678	21	AVG
Propionitrile	0.1853	0.2149	0.1861	0.1951	0.1857	0.1934	7	AVG
Methacrylonitrile	0.8655	0.9245	0.8544	0.8436	0.7681	0.8512	7	AVG
Tetrahydrofuran	0.3042	0.3193	0.2780	0.2808	0.2681	0.2901	7	AVG
Chloroform	4.0506	4.1864	3.8739	4.0081	3.7763	3.9791	4	AVG
1,1,1-Trichloroethane	2.5644	2.8157	2.6524	2.8326	2.6758	2.7082	4	AVG
Cyclohexane	3.1527	3.2765	3.0627	3.2093	2.8402	3.1083	5	AVG
Cyclohexane(2)	2.5663	2.6947	2.5347	2.6809	2.4375	2.5828	4	AVG
1,1-Dichloropropene	2.8308	3.0257	2.8404	2.9908	2.6655	2.8706	5	AVG
Carbon Tetrachloride	2.0529	2.2722	2.1676	2.3453	2.1923	2.2061	5	AVG
Isobutyl Alcohol	0.0125	0.0130	0.0124	0.0124	0.0121	0.0125	2	AVG
Benzene	1.5011	1.4932	1.3980	1.3568	1.2933	1.4085	6	AVG
1,2-Dichloroethane	0.5355	0.5180	0.5010	0.4841	0.4787	0.5035	5	AVG
1,2-Dichloroethane(2)	0.0484	0.0489	0.0483	0.0458	0.0448	0.0472	4	AVG
t-Amyl Methyl Ether	0.9956	1.0371	1.0126	0.9910	0.9595	0.9992	3	AVG
n-Heptane	0.3130	0.2311	0.2091	0.2069	0.2069	0.2334	20	AVG
Trichloroethene	0.4047	0.3985	0.3876	0.3848	0.3573	0.3866	5	AVG
1,2-Dichloropropane	0.4275	0.4309	0.4189	0.4085	0.3787	0.4129	5	AVG
Methyl Methacrylate	0.2427	0.2732	0.2702	0.2724	0.2596	0.2636	5	AVG
Dibromomethane	0.3165	0.3202	0.3102	0.3122	0.3019	0.3122	2	AVG
1,4-Dioxane	0.0035	0.0040	0.0040	0.0038	0.0038	0.0038	5	AVG
Bromodichloromethane	0.5352	0.5464	0.5336	0.5356	0.5271	0.5356	1	AVG
2-Chloroethyl Vinyl Ether	1.3068	1.3945	1.4464	1.4677	1.4431	1.4117	5	AVG
cis-1,3-Dichloropropene	3.1434	3.3277	3.3329	3.3650	3.2530	3.2844	3	AVG
4-Methyl-2-pentanone	2.3379	2.5751	2.3634	2.3487	2.3448	2.3940	4	AVG
Toluene	4.3579	4.4751	4.3320	4.3416	4.1136	4.3240	3	AVG

DHR15 8849

6A

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP06720 Calibration Date(s): 01/09/12 01/09/12

Heated Purge: (Y/N) N Calibration Time(s): 13:01 14:43

Matrix: (soil/water) WATER Level: (low/med) LOW GC Column: DB-624 ID: .25

LAB FILE ID: RRF 4 = mj09i05.d RRF 20= mj09i04.d
RRF 50= mj09i03.d RRF100= mj09i02.d RRF300= mj09i01.d

COMPOUND	RRF 4	RRF 20	RRF 50	RRF100	RRF300	$\overline{RRF}$	% RSD	CAL. METHOD
trans-1,3-Dichloropropene	2.4814	3.0510	3.0702	3.0955	2.9703	2.9337	9	AVG
Ethyl Methacrylate	2.3414	2.6952	2.6885	2.6946	2.5719	2.5983	6	AVG
1,1,2-Trichloroethane	1.9297	1.8997	1.8391	1.8330	1.7310	1.8465	4	AVG
Tetrachloroethene	1.8905	1.8738	1.8961	1.9664	1.8168	1.8887	3	AVG
1,3-Dichloropropane	3.2282	3.2902	3.2068	3.1599	2.9902	3.1751	4	AVG
2-Hexanone	1.5210	1.7532	1.6558	1.6790	1.6923	1.6602	5	AVG
Dibromochloromethane	1.9510	2.1100	2.1040	2.1889	2.1071	2.0922	4	AVG
1,2-Dibromoethane	2.0847	2.1370	2.1454	2.1889	2.0937	2.1300	2	AVG
Chlorobenzene	4.7427	4.9187	4.8298	4.8679	4.6438	4.8006	2	AVG
1,1,1,2-Tetrachloroethane	1.6117	1.7000	1.6799	1.7010	1.6271	1.6639	3	AVG
Ethylbenzene	7.9711	8.5118	8.2600	8.4179	7.8564	8.2034	3	AVG
m+p-Xylene	2.9683	2.9959	2.8623	2.8425	2.4456	2.8229	8	AVG
o-Xylene	2.8616	2.9755	2.8417	2.8131	2.4312	2.7846	7	AVG
Xylene (total)	2.9327	2.9891	2.8554	2.8327	2.4408	2.8102	8	AVG
Styrene	4.9448	5.1560	5.0021	5.0097	4.3781	4.8981	6	AVG
Bromoform	1.2777	1.4977	1.5187	1.5611	1.5494	1.4809	8	AVG
Isopropylbenzene	7.2070	7.4369	7.0894	7.2302	6.7528	7.1432	4	AVG
1,1,2,2-Tetrachloroethane	2.9962	3.0188	2.7186	2.6861	2.2782	2.7396	11	AVG
Bromobenzene	2.1055	2.1335	2.0500	2.0947	1.9167	2.0601	4	AVG
trans-1,4-Dichloro-2-Butene	0.6033	0.6799	0.6526	0.6840	0.6464	0.6532	5	AVG
1,2,3-Trichloropropane	0.6428	0.6463	0.5992	0.6063	0.5641	0.6117	6	AVG
n-Propylbenzene	9.7635	9.7281	9.2267	9.5627	8.7882	9.4138	4	AVG
2-Chlorotoluene	1.7479	1.8033	1.6979	1.7131	1.6015	1.7127	4	AVG
1,3,5-Trimethylbenzene	5.8575	6.0331	5.7990	5.9475	5.4179	5.8110	4	AVG
4-Chlorotoluene	1.8443	1.8338	1.7486	1.7864	1.6091	1.7644	5	AVG
tert-Butylbenzene	1.0300	1.0925	1.0591	1.0627	0.9746	1.0438	4	AVG
1,2,4-Trimethylbenzene	6.1056	6.2338	5.9563	6.1093	5.6216	6.0053	4	AVG
sec-Butylbenzene	7.3770	7.5124	7.0998	7.2688	6.6518	7.1820	5	AVG
p-Isopropyltoluene	5.7888	5.8944	5.5811	5.7236	5.1282	5.6232	5	AVG
1,3-Dichlorobenzene	3.6353	3.6955	3.5030	3.5410	3.1937	3.5137	6	AVG
1,4-Dichlorobenzene	3.8805	3.9058	3.6326	3.7149	3.4545	3.7176	5	AVG
Benzyl Chloride	4.1018	4.5911	4.5706	4.7770	4.6833	4.5448	6	AVG
n-Butylbenzene	3.4489	3.5585	3.2765	3.3176	3.0285	3.3260	6	AVG
1,2-Dichlorobenzene	3.6133	3.6133	3.3681	3.4084	3.1450	3.4296	6	AVG
1,2-Dibromo-3-Chloropropane	0.4432	0.4644	0.4589	0.4703	0.4337	0.4541	3	AVG
1,2,4-Trichlorobenzene	2.2740	2.4385	2.4402	2.5268	2.3234	2.4006	4	AVG
Hexachlorobutadiene	0.8648	0.8072	0.7906	0.8201	0.7668	0.8099	5	AVG
Naphthalene	5.8502	6.4240	6.3126	6.5350	5.9558	6.2155	5	AVG
1,2,3-Trichlorobenzene	2.3079	2.3403	2.3199	2.3967	2.2111	2.3152	3	AVG
1,2-Dichloroethane-d4	0.4771	0.5062	0.4847	0.5072		0.4938	3	AVG
1,2-Dichloroethane-d4(2)	0.3087	0.3233	0.3036	0.3392		0.3187	5	AVG
Fluorobenzene	1.2945	1.2766	1.2614	1.2134	1.2178	1.2527	3	AVG
4-Bromofluorobenzene	2.4655	2.4800	2.4487	2.4997	2.5680	2.4924	2	AVG
4-Bromofluorobenzene(2)	1.9652	2.0073	1.9938	2.0341	2.0860	2.0173	2	AVG
					Average %RSD		5	

DHR15 00046

Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem/HP06720.i/12jan09a.b/mj09i01.d VSTD300
/chem/HP06720.i/12jan09a.b/mj09i02.d VSTD100
/chem/HP06720.i/12jan09a.b/mj09i03.d VSTD050
/chem/HP06720.i/12jan09a.b/mj09i04.d VSTD020
/chem/HP06720.i/12jan09a.b/mj09i05.d VSTD004

Area Summary

File ID:

Internal Standard Name	mj09i01.d	mj09i02.d	mj09i03.d	mj09i04.d	mj09i05.d	Avg. Area	%RSD	In Spec
Bromochloromethane	96669	99572	105534	99674	108444	101979	5	Yes
1,4 Difluorobenzene	555580	595913	596229	585183	595614	585704	3	Yes
2 Bromo-1-chloropropane	102741	110009	114078	113818	116606	111450	5	Yes

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

File ID:

Internal Standard Name	mj09i01.d	mj09i02.d	mj09i03.d	mj09i04.d	mj09i05.d	Avg. RT
Bromochloromethane	5.562	5.562	5.561	5.561	5.561	5.562
1,4 Difluorobenzene	7.121	7.120	7.120	7.120	7.126	7.121
2-Bromo-1-chloropropane	9.414	9.413	9.413	9.413	9.419	9.414

* indicates the retention time is greater than 30 seconds from the average RT.

Report generated on 01/09/2012 at 15:13.

Lancaster Laboratories

GC/MS Volatiles Initial Calibration Verification

File: mj09101.d Injected: 01/09/12 16:25 Method: EPA 624

Inst: HP06720 Sample: LCSM82 Matrix/level: W/L

COMPOUND NAME	CONC (UG/L)	TRUE CONC (UG/L)	LIMITS (UG/L)	MEETS REQUIREMENTS
Dichlorodifluoromethane	14.2	20.0	13.0-27.0	YES
Chloromethane	16.5	20.0	1.0-40.8	YES
Vinyl Chloride	17.1	20.0	.8-39.2	YES
Bromomethane	14.5	20.0	2.8-37.2	YES
Chloroethane	14.9	20.0	7.6-32.4	YES
Trichlorofluoromethane	17.6	20.0	9.6-30.4	YES
Freon 123a	18.6	20.0	13.0-27.0	YES
Acrolein	144.3	150.0	97.5-202.5	YES
1,1-Dichloroethene	17.6	20.0	10.1-29.9	YES
Freon 113	17.5	20.0	13.0-27.0	YES
Acetone	116.9	150.0	97.5-202.5	YES
Methyl Iodide	17.6	20.0	13.0-27.0	YES
2-Propanol	146.0	150.0	97.5-202.5	YES
Carbon Disulfide	16.9	20.0	13.0-27.0	YES
Methylene Chloride	18.5	20.0	12.1-27.9	YES
t-Butyl Alcohol	182.2	200.0	130.0-270.0	YES
Acrylonitrile	79.5	100.0	65.0-135.0	YES
trans-1,2-Dichloroethene	18.1	20.0	13.9-26.1	YES
Methyl Tertiary Butyl Ether	18.0	20.0	13.0-27.0	YES
n-Hexane	16.2	20.0	13.0-27.0	YES
1,1-Dichloroethane	18.6	20.0	14.5-25.5	YES
di-Isopropyl Ether	17.9	20.0	13.0-27.0	YES
2-Chloro-1,3-Butadiene	18.0	20.0	13.0-27.0	YES
Ethyl t-Butyl Ether	18.3	20.0	13.0-27.0	YES
cis-1,2-Dichloroethene	18.5	20.0	13.9-26.1	YES
2,2-Dichloropropane	18.0	20.0	13.0-27.0	YES
2-Butanone	114.8	150.0	97.5-202.5	YES
Propionitrile	139.8	150.0	97.5-202.5	YES
Methacrylonitrile	153.1	150.0	97.5-202.5	YES
Tetrahydrofuran	89.0	100.0	65.0-135.0	YES
Chloroform	18.8	20.0	13.5-26.5	YES
1,1,1-Trichloroethane	18.1	20.0	15.0-25.0	YES
Cyclohexane	17.8	20.0	13.0-27.0	YES
1,1-Dichloropropene	18.2	20.0	13.0-27.0	YES
Carbon Tetrachloride	18.0	20.0	14.6-25.4	YES
Isobutyl Alcohol	503.3	500.0	325.0-675.0	YES
Benzene	20.6	20.0	12.8-27.2	YES
1,2-Dichloroethane	20.8	20.0	13.6-26.4	YES
t-Amyl Methyl Ether	19.9	20.0	13.0-27.0	YES

NOTE: Results for surrogate spike compounds 1,2-Dichloroethane-d4, Fluorobenzene, 4-Bromofluorobenzene are expressed as rounded % recovery

DNR15 8848

Lancaster Laboratories

GC/MS Volatiles Initial Calibration Verification

File: mj09101.d Injected: 01/09/12 16:25 Method: EPA 624

Inst: HP06720 Sample: LCSM82 Matrix/level: W/L

COMPOUND NAME	CONC (UG/L)	TRUE CONC (UG/L)	LIMITS (UG/L)	MEETS REQUIREMENTS
n-Heptane	17.4	20.0	13.0-27.0	YES
Trichloroethene	20.0	20.0	13.3-26.7	YES
1,2-Dichloropropane	20.7	20.0	6.8-33.2	YES
Methyl Methacrylate	20.0	20.0	13.0-27.0	YES
Dibromomethane	20.3	20.0	13.0-27.0	YES
1,4-Dioxane	455.8	500.0	325.0-675.0	YES
Bromodichloromethane	20.0	20.0	13.1-26.9	YES
2-Chloroethyl Vinyl Ether	19.4	20.0	.5-44.8	YES
cis-1,3-Dichloropropene	19.5	20.0	4.8-35.2	YES
4-Methyl-2-pentanone	98.3	100.0	65.0-135.0	YES
Toluene	19.9	20.0	14.9-25.1	YES
trans-1,3-Dichloropropene	20.2	20.0	10.0-30.0	YES
Ethyl Methacrylate	20.2	20.0	13.0-27.0	YES
1,1,2-Trichloroethane	20.0	20.0	14.2-25.8	YES
Tetrachloroethene	19.1	20.0	14.7-25.3	YES
1,3-Dichloropropane	20.7	20.0	13.0-27.0	YES
2-Hexanone	94.9	100.0	65.0-135.0	YES
Dibromochloromethane	19.3	20.0	13.5-26.5	YES
1,2-Dibromoethane	19.6	20.0	13.0-27.0	YES
Chlorobenzene	19.5	20.0	13.2-26.8	YES
1,1,1,2-Tetrachloroethane	19.7	20.0	13.0-27.0	YES
Ethylbenzene	20.0	20.0	11.8-28.2	YES
m+p-Xylene	41.1	40.0	26.0-54.0	YES
o-Xylene	20.6	20.0	13.0-27.0	YES
Xylene (total)	61.7	60.0	39.0-81.0	YES
Styrene	20.6	20.0	13.0-27.0	YES
Bromoform	19.1	20.0	14.2-25.8	YES
Isopropylbenzene	19.9	20.0	13.0-27.0	YES
1,1,2,2-Tetrachloroethane	21.3	20.0	12.1-27.9	YES
Bromobenzene	20.2	20.0	13.0-27.0	YES
trans-1,4-Dichloro-2-Butene	103.3	100.0	65.0-135.0	YES
1,2,3-Trichloropropane	20.3	20.0	13.0-27.0	YES
n-Propylbenzene	20.1	20.0	13.0-27.0	YES
2-Chlorotoluene	19.9	20.0	13.0-27.0	YES
1,3,5-Trimethylbenzene	20.2	20.0	13.0-27.0	YES
4-Chlorotoluene	20.2	20.0	13.0-27.0	YES
tert-Butylbenzene	20.0	20.0	13.0-27.0	YES
1,2,4-Trimethylbenzene	20.4	20.0	13.0-27.0	YES
sec-Butylbenzene	20.3	20.0	13.0-27.0	YES

NOTE: Results for surrogate spike compounds 1,2-Dichloroethane-d4, Fluorobenzene, 4-Bromofluorobenzene are expressed as rounded % recovery

DHR15 8849

Lancaster Laboratories
GC/MS Volatiles Initial Calibration Verification

File: mj09l01.d Injected: 01/09/12 16:25 Method: EPA 624
Inst: HP06720 Sample: LCSM82 Matrix/level: W/L

COMPOUND NAME	CONC (UG/L)	TRUE CONC (UG/L)	LIMITS (UG/L)	MEETS REQUIREMENTS
p-Isopropyltoluene	20.0	20.0	13.0-27.0	YES
1,3-Dichlorobenzene	20.6	20.0	14.6-25.4	YES
1,4-Dichlorobenzene	20.3	20.0	12.6-27.4	YES
Benzyl Chloride	19.0	20.0	13.0-27.0	YES
n-Butylbenzene	20.5	20.0	13.0-27.0	YES
1,2-Dichlorobenzene	20.8	20.0	12.6-27.4	YES
1,2-Dibromo-3-Chloropropane	19.5	20.0	13.0-27.0	YES
1,2,4-Trichlorobenzene	19.0	20.0	13.0-27.0	YES
Hexachlorobutadiene	17.9	20.0	13.0-27.0	YES
Naphthalene	19.0	20.0	13.0-27.0	YES
1,2,3-Trichlorobenzene	19.0	20.0	13.0-27.0	YES
1,2-Dichloroethane-d4	94	30	76-114	YES
Fluorobenzene	102	30	80-120	YES
4-Bromofluorobenzene	99	30	86-115	YES

NOTE: Results for surrogate spike compounds 1,2-Dichloroethane-d4, Fluorobenzene, 4-Bromofluorobenzene are expressed as rounded % recovery

DHR15 0059

Lancaster Laboratories

GC/MS Volatiles Method 624 Check Sample Summary

File: mj24c01.d Injected: 01/24/12 11:46 Method: EPA 624

Inst: HP06720 Sample: VSTD020 Matrix/level: W/L

COMPOUND NAME	CONC (UG/L)	TRUE CONC (UG/L)	LIMITS (UG/L)	MEETS REQUIREMENTS
Dichlorodifluoromethane	19.0	20.0	13.0-27.0	YES
Chloromethane	17.3	20.0	1.0-40.8	YES
Vinyl Chloride	17.8	20.0	.8-39.2	YES
Bromomethane	19.8	20.0	2.8-37.2	YES
Chloroethane	20.2	20.0	7.6-32.4	YES
Trichlorofluoromethane	20.1	20.0	9.6-30.4	YES
Acrolein	215.7	200.0	130.0-270.0	YES
1,1-Dichloroethene	18.4	20.0	10.1-29.9	YES
Freon 113	19.0	20.0	13.0-27.0	YES
Acetone	46.7	40.0	26.0-54.0	YES
Methyl Iodide	18.9	20.0	13.0-27.0	YES
2-Propanol	124.6	100.0	65.0-135.0	YES
Carbon Disulfide	17.8	20.0	13.0-27.0	YES
Methylene Chloride	19.4	20.0	12.1-27.9	YES
t-Butyl Alcohol	110.1	100.0	65.0-135.0	YES
Acrylonitrile	21.7	20.0	13.0-27.0	YES
trans-1,2-Dichloroethene	18.8	20.0	13.9-26.1	YES
Methyl Tertiary Butyl Ether	18.5	20.0	13.0-27.0	YES
n-Hexane	17.2	20.0	13.0-27.0	YES
1,1-Dichloroethane	19.1	20.0	14.5-25.5	YES
di-Isopropyl Ether	18.0	20.0	13.0-27.0	YES
2-Chloro-1,3-Butadiene	19.2	20.0	13.0-27.0	YES
Ethyl t-Butyl Ether	18.2	20.0	13.0-27.0	YES
cis-1,2-Dichloroethene	19.4	20.0	13.9-26.1	YES
2,2-Dichloropropane	19.0	20.0	13.0-27.0	YES
2-Butanone	44.4	40.0	26.0-54.0	YES
Propionitrile	107.0	100.0	65.0-135.0	YES
Methacrylonitrile	47.2	50.0	32.5-67.5	YES
Tetrahydrofuran	38.0	40.0	26.0-54.0	YES
Chloroform	17.8	20.0	13.5-26.5	YES
1,1,1-Trichloroethane	17.3	20.0	15.0-25.0	YES
Cyclohexane	14.7	20.0	13.0-27.0	YES
Cyclohexane(2)	15.4	20.0	13.0-27.0	YES
1,1-Dichloropropene	16.4	20.0	13.0-27.0	YES
Carbon Tetrachloride	17.5	20.0	14.6-25.4	YES
Isobutyl Alcohol	295.4	250.0	162.5-337.5	YES
Benzene	20.5	20.0	12.8-27.2	YES
1,2-Dichloroethane	22.8	20.0	13.6-26.4	YES
1,2-Dichloroethane(2)	20.7	20.0	13.6-26.4	YES

NOTE: Results for surrogate spike compounds 1,2-Dichloroethane-d4, Fluorobenzene, 4-Bromofluorobenzene are expressed as rounded % recovery

DHR15 0051

Lancaster Laboratories
GC/MS Volatiles Method 624 Check Sample Summary

File: mj24c01.d Injected: 01/24/12 11:46 Method: EPA 624
Inst: HP06720 Sample: VSTD020 Matrix/level: W/L

COMPOUND NAME	CONC (UG/L)	TRUE CONC (UG/L)	LIMITS (UG/L)	MEETS REQUIREMENTS
t-Amyl Methyl Ether	18.8	20.0	13.0-27.0	YES
n-Heptane	18.7	20.0	13.0-27.0	YES
Trichloroethene	20.5	20.0	13.3-26.7	YES
1,2-Dichloropropane	19.2	20.0	6.8-33.2	YES
Methyl Methacrylate	18.9	20.0	13.0-27.0	YES
Dibromomethane	21.2	20.0	13.0-27.0	YES
1,4-Dioxane	305.9	250.0	162.5-337.5	YES
Bromodichloromethane	21.3	20.0	13.1-26.9	YES
2-Chloroethyl Vinyl Ether	18.1	20.0	.5-44.8	YES
cis-1,3-Dichloropropene	20.1	20.0	4.8-35.2	YES
4-Methyl-2-pentanone	45.2	40.0	26.0-54.0	YES
Toluene	20.8	20.0	14.9-25.1	YES
trans-1,3-Dichloropropene	20.1	20.0	10.0-30.0	YES
Ethyl Methacrylate	20.6	20.0	13.0-27.0	YES
1,1,2-Trichloroethane	21.5	20.0	14.2-25.8	YES
Tetrachloroethene	22.6	20.0	14.7-25.3	YES
1,3-Dichloropropane	21.7	20.0	13.0-27.0	YES
2-Hexanone	44.4	40.0	26.0-54.0	YES
Dibromochloromethane	22.1	20.0	13.5-26.5	YES
1,2-Dibromoethane	20.9	20.0	13.0-27.0	YES
Chlorobenzene	21.0	20.0	13.2-26.8	YES
1,1,1,2-Tetrachloroethane	22.2	20.0	13.0-27.0	YES
Ethylbenzene	21.5	20.0	11.8-28.2	YES
m+p-Xylene	43.2	40.0	26.0-54.0	YES
o-Xylene	21.9	20.0	13.0-27.0	YES
Xylene (total)	65.1	60.0	39.0-81.0	YES
Styrene	21.6	20.0	13.0-27.0	YES
Bromoform	23.9	20.0	14.2-25.8	YES
Isopropylbenzene	22.5	20.0	13.0-27.0	YES
1,1,2,2-Tetrachloroethane	23.7	20.0	12.1-27.9	YES
Bromobenzene	22.8	20.0	13.0-27.0	YES
trans-1,4-Dichloro-2-Butene	67.0	50.0	32.5-67.5	YES
1,2,3-Trichloropropane	23.6	20.0	13.0-27.0	YES
n-Propylbenzene	21.5	20.0	13.0-27.0	YES
2-Chlorotoluene	21.7	20.0	13.0-27.0	YES
1,3,5-Trimethylbenzene	22.0	20.0	13.0-27.0	YES
4-Chlorotoluene	21.6	20.0	13.0-27.0	YES
tert-Butylbenzene	21.8	20.0	13.0-27.0	YES
1,2,4-Trimethylbenzene	22.0	20.0	13.0-27.0	YES

NOTE: Results for surrogate spike compounds 1,2-Dichloroethane-d4, Fluorobenzene, 4-Bromofluorobenzene are expressed as rounded % recovery

DHR15 0052

Lancaster Laboratories

GC/MS Volatiles Method 624 Check Sample Summary

File: mj24c01.d Injected: 01/24/12 11:46 Method: EPA 624
Inst: HP06720 Sample: VSTD020 Matrix/level: W/L

COMPOUND NAME	CONC (UG/L)	TRUE CONC (UG/L)	LIMITS (UG/L)	MEETS REQUIREMENTS
sec-Butylbenzene	21.8	20.0	13.0-27.0	YES
p-Isopropyltoluene	21.8	20.0	13.0-27.0	YES
1,3-Dichlorobenzene	22.6	20.0	14.6-25.4	YES
1,4-Dichlorobenzene	22.7	20.0	12.6-27.4	YES
Benzyl Chloride	20.6	20.0	13.0-27.0	YES
n-Butylbenzene	21.9	20.0	13.0-27.0	YES
1,2-Dichlorobenzene	23.2	20.0	12.6-27.4	YES
1,2-Dibromo-3-Chloropropane	23.9	20.0	13.0-27.0	YES
1,2,4-Trichlorobenzene	23.0	20.0	13.0-27.0	YES
Hexachlorobutadiene	23.9	20.0	13.0-27.0	YES
Naphthalene	23.2	20.0	13.0-27.0	YES
1,2,3-Trichlorobenzene	23.5	20.0	13.0-27.0	YES
1,2-Dichloroethane-d4	86	30	76-114	YES
1,2-Dichloroethane-d4(2)	82	30	76-114	YES
Fluorobenzene	102	30	80-120	YES
4-Bromofluorobenzene	103	30	86-115	YES
4-Bromofluorobenzene(2)	110	30	86-115	YES

NOTE: Results for surrogate spike compounds 1,2-Dichloroethane-d4, Fluorobenzene, 4-Bromofluorobenzene are expressed as rounded % recovery

DHR15 0853

Lancaster Laboratories
Continuing Calibration Internal Standard Check

Initial Calibration Standards:

/chem/HP06720.i/12jan09a.b/mj09i05.d
/chem/HP06720.i/12jan09a.b/mj09i04.d
/chem/HP06720.i/12jan09a.b/mj09i03.d
/chem/HP06720.i/12jan09a.b/mj09i02.d
/chem/HP06720.i/12jan09a.b/mj09i01.d

File /chem/HP06720.i/12jan09a.b/mj09i04.d is Mid Level Calibration Standard used for comparison.

Current Continuing Calibration Standard:

/chem/HP06720.i/12jan24a.b/mj24c01.d

RT Summary

Internal Standard Name	File ID: mj24c01.d	ICAL RT	In Spec
Bromochloromethane	5.569	5.561	Yes
1,4-Difluorobenzene	7.134	7.120	Yes
2-Bromo-1-chloropropane	9.421	9.413	Yes

A "No" indicates the retention time is greater than 30 seconds from the referenced ICAL standard.

Area Summary

Internal Standard Name	File ID: mj24c01.d	ICAL Area	Low Limit	High Limit	In Spec
Bromochloromethane	114158	99674	49837	199348	Yes
1,4-Difluorobenzene	533395	585183	292592	1170366	Yes
2-Bromo-1-chloropropane	98593	113818	56909	227636	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

Comments: _____

_____

report generated on 01/24/2012 at 12:17

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.: DHR15

Lab File ID (Standard): mj24c01.d Date Analyzed: 01/24/12

Instrument ID: HP06720 Time Analyzed: 11:46

Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

		IS1(BCM) AREA #	RT #	IS2(DFB) AREA #	RT #	IS3(BCP) AREA #	RT #
	12 HOUR STD	114158	5.569	533395	7.134	98593	9.420
	UPPER LIMIT	228316	6.069	1066790	7.634	197186	9.920
	LOWER LIMIT	57079	5.069	266698	6.634	49296	8.920
	LAB SAMPLE ID						
01	VBLKM96	116444	5.568	548581	7.139	98411	9.426
02	LCSM96	112966	5.574	532785	7.138	97522	9.419
03	6526264	115847	5.574	524300	7.138	91912	9.425
04	6526264DL	115164	5.570	537057	7.135	97338	9.422
05	6526799	115736	5.568	540250	7.133	95994	9.426
06	6526265	117033	5.569	521143	7.133	93749	9.420
07	6525012DL	113047	5.576	533174	7.134	94835	9.421
08	6525016	114464	5.569	526538	7.134	95216	9.421
09	6526843	117599	5.573	531338	7.132	95392	9.419
10	6526800	119958	5.573	547911	7.132	98305	9.419
11	6526801	121168	5.569	540943	7.134	97381	9.421
12	6526802	115918	5.569	530530	7.128	94488	9.421
13	6526803MS	111492	5.567	515839	7.131	96119	9.418
14	6526804MSD	113628	5.562	521770	7.133	95632	9.419
15	6526805	117472	5.563	537676	7.127	94525	9.420
16	6526806	103149	5.568	513837	7.121	92190	9.414
17	6526807	112723	5.564	531775	7.123	94841	9.416
18	6526370	109448	5.558	511752	7.117	93206	9.416
19	6528097	111762	5.558	529153	7.117	96142	9.416
20	6527722	120151	5.562	615788	7.121	108299	9.420
21	6527723	127559	5.562	624837	7.127	109519	9.414
22	6527724	124990	5.563	612117	7.121	107307	9.414

IS1 (BCM)=Bromochloromethane
IS2 (DFB)=1,4-Difluorobenzene
IS3 (BCP)=2-Bromo-1-chloropropane

UPPER LIMIT = + 100% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

Column used to flag values outside QC limits with an asterisk
* Values outside of QC limits.

DHR15 0556

FORM VIII VOA

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.: DHR15

Lab File ID (Standard): mj24c01.d Date Analyzed: 01/24/12

Instrument ID: HP06720 Time Analyzed: 11:46

Matrix: (soil/water) WATER Level: (low/med) LOW Column: (pack/cap) CAP

		IS1(BCM)		IS2(DFB)		IS3(BCP)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	12 HOUR STD	114158	5.569	533395	7.134	98593	9.420
	UPPER LIMIT	228316	6.069	1066790	7.634	197186	9.920
	LOWER LIMIT	57079	5.069	266698	6.634	49296	8.920
	LAB SAMPLE ID						
23	6527725	116258	5.557	581771	7.122	102667	9.415
24	6526263	115536	5.562	565276	7.126	101509	9.413

IS1 (BCM)=Bromochloromethane
IS2 (DFB)=1,4-Difluorobenzene
IS3 (BCP)=2-Bromo-1-chloropropane

UPPER LIMIT = + 100% of internal standard area.
LOWER LIMIT = - 50% of internal standard area.

Column used to flag values outside QC limits with an asterisk
* Values outside of QC limits.

FORM VIII VOA

Preparation and Run Logs

Lancaster Laboratories
Runlog for Hewelet Packard GC/MS System HP06720 **HP #10**

** Shift #1 Analyst: JML ** Shift #2 Analyst: SEJ ** Shift #3 Analyst: _____ *

Comment Code:
R = Reinjection necessary
X = Sample sent to be reextracted
S = Surrogate problem
I = Internal Standard problem
NU = Not used
F = Further dilution required
MR = Meets requirements
IUO = Internal use only
Cz = Confirms z, (z = S, I or X)
T = Injected outside valid tune period

Other problems or comments are as follows:

* 624 WATERS *

Data Directory Path is - C:\HPCHEM\1\DATA\12JAN09A\

FILE	SAMPLE	LLI#	DATE	TIME	BATCH	D.F.	NOTES
MJ09T01.D	BFBSEP28-11	50NG BFB	9 Jan 12	12:21			MR
MJ09X01.D	BLK	BLK	9 Jan 12	12:35			NU
MJ09I01.D	VSTD300	VSTD300	9 Jan 12	13:01			MR
MJ09I02.D	VSTD100	VSTD100	9 Jan 12	13:26			MR
MJ09I03.D	VSTD050	VSTD050	9 Jan 12	13:52			MR
MJ09I04.D	VSTD020	VSTD020	9 Jan 12	14:17			MR
MJ09I05.D	VSTD004	VSTD004	9 Jan 12	14:43			MR
MJ09M01.D	MDL001	MDL001	9 Jan 12	15:08			MR
MJ09C01.D	VSTD020	VSTD020	9 Jan 12	15:33			MR
MJ09B01.D	VBLKM82	VBLKM82	9 Jan 12	15:59	M120091AA		MR
MJ09L01.D	LCSM82	LCSM82	9 Jan 12	16:25	M120091AA		MR

Lancaster Laboratories
Runlog for Hewelet Packard GC/MS System HP06720 **HP #10**

** Shift #1 Analyst:____LCP____ ** Shift #2 Analyst:_____ ** Shift #3 Analyst:_____*

Comment Code:
R = Reinjection necessary
S = Surrogate problem
NU = Not used
MR = Meets requirements
Cz = Confirms z, (z = S, I or X)
X = Sample sent to be reextracted
I = Internal Standard problem
F = Further dilution required
IUO = Internal use only
T = Injected outside valid tune period

Other problems or comments are as follows:

_____
_____
_____ NOT A GOOD MATCH W/ PRIMARY_____*
_____
_____

Data Directory Path is - C:\HPCHEM\1\DATA\12JAN24A\

FILE	SAMPLE	LLI#	DATE	TIME	BATCH	D.F.	NOTES
MJ24T01.D	BFBSEP28-11	50NG BFB	24 Jan 12	11:22			MR
MJ24C01.D	VSTD020	VSTD020	24 Jan 12	11:46			MR
MJ24B01.D	VBLKM96	VBLKM96	24 Jan 12	12:12	M120241AA		MR
MJ24L01.D	LCSM96	LCSM96	24 Jan 12	12:38	M120241AA		MR
MJ24B51.D	VBLKM97	VBLKM97	24 Jan 12	13:03	M120242AA		MR
MJ24S01.D	XXXXX	6526264	24 Jan 12	13:29	M120241AA		F
MJ24S02.D	XXXXXDL	6526264DL	24 Jan 12	13:54	M120241AA	10	MR
MJ24S03.D	XXXXX	6526799	24 Jan 12	14:19	M120241AA		MR
MJ24S04.D	XXXXX	6526265	24 Jan 12	14:45	M120241AA		MR
MJ24S05.D	XXXXXDL	6525012DL	24 Jan 12	15:10	M120241AA	10	MR
MJ24S06.D	XXXXXDL	6525015DL	24 Jan 12	15:36	M120241AA	10	NU/*
MJ24S07.D	XXXXX	6525016	24 Jan 12	16:01	M120241AA		MR
MJ24S08.D	XXXXX	6526843	24 Jan 12	16:27	M120241AA		MR
MJ24S09.D	XXXXX	6526800	24 Jan 12	16:53	M120241AA		MR
MJ24S10.D	XXXXX	6526801	24 Jan 12	17:18	M120241AA		MR
MJ24S11.D	XXXXX	6526802	24 Jan 12	17:43	M120241AA		MR
MJ24S12.D	XXXXXMS	6526803MS	24 Jan 12	18:09	M120241AA		MR
MJ24S13.D	XXXXXMSD	6526804MSD	24 Jan 12	18:34	M120241AA		MR
MJ24S14.D	XXXXX	6526805	24 Jan 12	19:00	M120241AA		MR
MJ24S15.D	XXXXX	6526806	24 Jan 12	19:25	M120241AA		MR
MJ24S16.D	XXXXX	6526807	24 Jan 12	19:51	M120241AA		MR
MJ24S17.D	XXXXX	6526370	24 Jan 12	20:17	M120241AA		MR
MJ24S18.D	XXXXX	6528097	24 Jan 12	20:42	M120241AA		MR
MJ24S19.D	XXXXX	6527722	24 Jan 12	21:08	M120241AA		MR
MJ24S20.D	XXXXX	6527723	24 Jan 12	21:34	M120241AA		MR
MJ24S21.D	XXXXX	6527724	24 Jan 12	21:59	M120241AA		MR
MJ24S22.D	XXXXX	6527725	24 Jan 12	22:24	M120241AA		MR
MJ24S23.D	XXXXX	6526263	24 Jan 12	22:49	M120241AA		MR
MJ24X01.D	CBLKM	CBLKM	25 Jan 12	6:48	M120241AA		NU

Semivolatiles by 625

Case Narrative
Conformance/Nonconformance
Summary

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Case Narrative
CLIENT: CH2M Hill, Inc.
SDG: DHR15

GC/MS Semivolatiles
Fraction: Semivolatiles by 625

Method 625

Sample #	Client ID	Matrix Liquid	Solid	DF	Comments
6526806	HGR-IDW-W2	X		1	
6526807	HGR-IDW-W3	X		1	

See QC Reference List for Associated Batch QC Samples.

SAMPLE RECEIPT:

Samples were received in good condition and within temperature requirements.

HOLDING TIME:

Sample numbers 6526806RE, 6526807RE: These samples were extracted outside of the method required holding time.

PREPARATION/EXTRACTION/DIGESTION:

No problems were encountered.

CALIBRATION/STANDARDIZATION:

All criteria were met.

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

LCS/LCSD

Sample numbers 6526806, 6526807: The recoveries of hexachlorocyclopentadiene, dimethylphthalate and diethylphthalate are outside of QC limits in the LCS. These samples were reextracted and acceptable QC was observed.

DHR15 0863

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Case Narrative
CLIENT: CH2M Hill, Inc.
SDG: DHR15

GC/MS Semivolatiles
Fraction: Semivolatiles by 625

MS/MSD

Site specific matrix QC samples were not submitted for this SDG. The batch matrix QC was performed on samples from another project. Therefore the matrix effects would not be relevant and matrix QC is not provided in the data package. Laboratory spike data (LCS) are provided.

Surrogate

Surrogate recoveries that are noncompliant are confirmed unless attributed to a dilution or otherwise noted.

SAMPLE ANALYSIS:

No problems were encountered with the analysis of the samples.

DATA INTERPRETATION:

No further interpretation is necessary for the data submitted.

Abbreviation Key

UNSPK = Unspiked (for MS/MSD)	LOQ = Limit of Quantitation
MS = Matrix Spike	MDL = Method Detection Limit
MSD = Matrix Spike Duplicate	ND = Not Detected
BKG = Background (for Duplicate)	J = Estimated Value
D = Duplicate (DUP)	E= out of calibration range
LCS = Lab Control Sample	RE = Repreparation/Reanalysis
LCSD = Lab Control Sample Duplicate	* = Out of Specification

Narrative Reviewed and Approved 2/2/12 (Date) by

Lydia C. Steinke
Specialist

DHR15 8864

Quality Control and Calibration Summary Forms

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LOQ/MDL Summary
GC/MS Semivolatiles

SDG: DHR15

Fraction: Semivolatiles by 625

10334: Method 625 Analyte Name	Default MDL	Default LOQ	Units
N-Nitrosodimethylamine	2	5	ug/l
Phenol	0.4	5	ug/l
bis(2-Chloroethyl)ether	0.4	5	ug/l
2-Chlorophenol	0.3	5	ug/l
1,3-Dichlorobenzene	0.3	5	ug/l
1,4-Dichlorobenzene	0.3	5	ug/l
1,2-Dichlorobenzene	0.3	5	ug/l
bis(2-Chloroisopropyl)ether	0.3	5	ug/l
N-Nitroso-di-n-propylamine	0.4	5	ug/l
Hexachloroethane	0.4	5	ug/l
Nitrobenzene	0.5	5	ug/l
Isophorone	0.3	5	ug/l
2-Nitrophenol	0.4	5	ug/l
2,4-Dimethylphenol	0.3	5	ug/l
bis(2-Chloroethoxy)methane	0.5	5	ug/l
2,4-Dichlorophenol	0.3	5	ug/l
1,2,4-Trichlorobenzene	0.3	5	ug/l
Naphthalene	0.2	5	ug/l
Hexachlorobutadiene	0.8	5	ug/l
4-Chloro-3-methylphenol	0.3	5	ug/l
Hexachlorocyclopentadiene	2	15	ug/l
2,4,6-Trichlorophenol	0.7	5	ug/l
2-Chloronaphthalene	0.2	5	ug/l
Dimethylphthalate	1	5	ug/l
2,6-Dinitrotoluene	0.3	5	ug/l
Acenaphthylene	0.3	5	ug/l
Acenaphthene	0.3	5	ug/l
2,4-Dinitrophenol	10	30	ug/l
4-Nitrophenol	5	10	ug/l
2,4-Dinitrotoluene	0.4	5	ug/l
Diethylphthalate	0.3	5	ug/l
4-Chlorophenyl-phenylether	0.3	5	ug/l
Fluorene	0.3	5	ug/l
4,6-Dinitro-2-methylphenol	4	15	ug/l
N-Nitrosodiphenylamine	0.3	5	ug/l
1,2-Diphenylhydrazine	0.2	5	ug/l
4-Bromophenyl-phenylether	0.3	5	ug/l
Hexachlorobenzene	1	5	ug/l
Pentachlorophenol	3	15	ug/l
Phenanthrene	0.2	5	ug/l
Anthracene	0.2	5	ug/l
Di-n-butylphthalate	0.5	5	ug/l
Fluoranthene	0.3	5	ug/l
Benzidine	20	60	ug/l
Pyrene	0.2	5	ug/l
Butylbenzylphthalate	0.8	5	ug/l
bis(2-Ethylhexyl)phthalate	1	5	ug/l

DHR15 0866

Fraction: Semivolatiles by 625

10334: Method 625 Analyte Name	Default MDL	Default LOQ	Units
3,3'-Dichlorobenzidine	0.8	5	ug/l
Benzo(a)anthracene	0.2	5	ug/l
Chrysene	0.2	5	ug/l
Di-n-octylphthalate	0.5	5	ug/l
Benzo(b)fluoranthene	0.3	5	ug/l
Benzo(k)fluoranthene	0.3	5	ug/l
Benzo(a)pyrene	0.3	5	ug/l
Indeno(1,2,3-cd)pyrene	0.3	5	ug/l
Dibenz(a,h)anthracene	0.4	5	ug/l
Benzo(g,h,i)perylene	0.2	5	ug/l

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Quality Control Reference List
GC/MS Semivolatiles

CLIENT: CH2M Hill, Inc.
SDG: DHR15

Fraction: Semivolatiles by 625

Analysis	Batch Number	Sample Number	Analysis Date
Method 625	12021WAD625	SBLKWD021	01/23/2012 16:58:00
		021WDLCS	01/23/2012 17:28:00
		6526806	01/23/2012 21:33:00
		6526807	01/23/2012 22:04:00
Method 625	12025WAE625	SBLKWE025	01/27/2012 01:17:00
		025WELCS	01/27/2012 01:48:00
		6526806RE	01/27/2012 04:57:00
		6526807RE	01/27/2012 05:27:00

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Quality Control Summary
Method Blank
GC/MS Semivolatiles
SDG: DHR15
Matrix: LIQUID

Fraction: Semivolatiles by 625

12021WAD625 / SBLKWD021 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
N-Nitrosodimethylamine	01/23/12	N.D.	ug/l	2	5
Phenol	01/23/12	N.D.	ug/l	0.4	5
bis(2-Chloroethyl)ether	01/23/12	N.D.	ug/l	0.4	5
2-Chlorophenol	01/23/12	N.D.	ug/l	0.3	5
1,3-Dichlorobenzene	01/23/12	N.D.	ug/l	0.3	5
1,4-Dichlorobenzene	01/23/12	N.D.	ug/l	0.3	5
1,2-Dichlorobenzene	01/23/12	N.D.	ug/l	0.3	5
bis(2-Chloroisopropyl)ether	01/23/12	N.D.	ug/l	0.3	5
N-Nitroso-di-n-propylamine	01/23/12	N.D.	ug/l	0.4	5
Hexachloroethane	01/23/12	N.D.	ug/l	0.4	5
Nitrobenzene	01/23/12	N.D.	ug/l	0.5	5
Isophorone	01/23/12	N.D.	ug/l	0.3	5
2-Nitrophenol	01/23/12	N.D.	ug/l	0.4	5
2,4-Dimethylphenol	01/23/12	N.D.	ug/l	0.3	5
bis(2-Chloroethoxy)methane	01/23/12	N.D.	ug/l	0.5	5
2,4-Dichlorophenol	01/23/12	N.D.	ug/l	0.3	5
1,2,4-Trichlorobenzene	01/23/12	N.D.	ug/l	0.3	5
Naphthalene	01/23/12	N.D.	ug/l	0.2	5
Hexachlorobutadiene	01/23/12	N.D.	ug/l	0.8	5
4-Chloro-3-methylphenol	01/23/12	N.D.	ug/l	0.3	5
Hexachlorocyclopentadiene	01/23/12	N.D.	ug/l	2	15
2,4,6-Trichlorophenol	01/23/12	N.D.	ug/l	0.7	5
2-Chloronaphthalene	01/23/12	N.D.	ug/l	0.2	5
Dimethylphthalate	01/23/12	N.D.	ug/l	1	5
2,6-Dinitrotoluene	01/23/12	N.D.	ug/l	0.3	5
Acenaphthylene	01/23/12	N.D.	ug/l	0.3	5
Acenaphthene	01/23/12	N.D.	ug/l	0.3	5
2,4-Dinitrophenol	01/23/12	N.D.	ug/l	10	30
4-Nitrophenol	01/23/12	N.D.	ug/l	5	10
2,4-Dinitrotoluene	01/23/12	N.D.	ug/l	0.4	5
Diethylphthalate	01/23/12	N.D.	ug/l	0.3	5
4-Chlorophenyl-phenylether	01/23/12	N.D.	ug/l	0.3	5
Fluorene	01/23/12	N.D.	ug/l	0.3	5
4,6-Dinitro-2-methylphenol	01/23/12	N.D.	ug/l	4	15
N-Nitrosodiphenylamine	01/23/12	N.D.	ug/l	0.3	5
1,2-Diphenylhydrazine	01/23/12	N.D.	ug/l	0.2	5
4-Bromophenyl-phenylether	01/23/12	N.D.	ug/l	0.3	5
Hexachlorobenzene	01/23/12	N.D.	ug/l	1	5
Pentachlorophenol	01/23/12	N.D.	ug/l	3	15
Phenanthrene	01/23/12	N.D.	ug/l	0.2	5
Anthracene	01/23/12	N.D.	ug/l	0.2	5
Di-n-butylphthalate	01/23/12	N.D.	ug/l	0.5	5
Fluoranthene	01/23/12	N.D.	ug/l	0.3	5
Benzidine	01/23/12	N.D.	ug/l	20	60
Pyrene	01/23/12	N.D.	ug/l	0.2	5

DHR15 0869

Fraction: Semivolatiles by 625

12021WAD625 / SBLKWD021 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Butylbenzylphthalate	01/23/12	N.D.	ug/l	0.8	5
bis(2-Ethylhexyl)phthalate	01/23/12	N.D.	ug/l	1	5
3,3'-Dichlorobenzidine	01/23/12	N.D.	ug/l	0.8	5
Benzo(a)anthracene	01/23/12	N.D.	ug/l	0.2	5
Chrysene	01/23/12	N.D.	ug/l	0.2	5
Di-n-octylphthalate	01/23/12	N.D.	ug/l	0.5	5
Benzo(b)fluoranthene	01/23/12	N.D.	ug/l	0.3	5
Benzo(k)fluoranthene	01/23/12	N.D.	ug/l	0.3	5
Benzo(a)pyrene	01/23/12	N.D.	ug/l	0.3	5
Indeno(1,2,3-cd)pyrene	01/23/12	N.D.	ug/l	0.3	5
Dibenz(a,h)anthracene	01/23/12	N.D.	ug/l	0.4	5
Benzo(g,h,i)perylene	01/23/12	N.D.	ug/l	0.2	5

12025WAE625 / SBLKWE025 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
N-Nitrosodimethylamine	01/27/12	N.D.	ug/l	2	5
Phenol	01/27/12	N.D.	ug/l	0.4	5
bis(2-Chloroethyl)ether	01/27/12	N.D.	ug/l	0.4	5
2-Chlorophenol	01/27/12	N.D.	ug/l	0.3	5
1,3-Dichlorobenzene	01/27/12	N.D.	ug/l	0.3	5
1,4-Dichlorobenzene	01/27/12	N.D.	ug/l	0.3	5
1,2-Dichlorobenzene	01/27/12	N.D.	ug/l	0.3	5
bis(2-Chloroisopropyl)ether	01/27/12	N.D.	ug/l	0.3	5
N-Nitroso-di-n-propylamine	01/27/12	N.D.	ug/l	0.4	5
Hexachloroethane	01/27/12	N.D.	ug/l	0.4	5
Nitrobenzene	01/27/12	N.D.	ug/l	0.5	5
Isophorone	01/27/12	N.D.	ug/l	0.3	5
2-Nitrophenol	01/27/12	N.D.	ug/l	0.4	5
2,4-Dimethylphenol	01/27/12	N.D.	ug/l	0.3	5
bis(2-Chloroethoxy)methane	01/27/12	N.D.	ug/l	0.5	5
2,4-Dichlorophenol	01/27/12	N.D.	ug/l	0.3	5
1,2,4-Trichlorobenzene	01/27/12	N.D.	ug/l	0.3	5
Naphthalene	01/27/12	N.D.	ug/l	0.2	5
Hexachlorobutadiene	01/27/12	N.D.	ug/l	0.8	5
4-Chloro-3-methylphenol	01/27/12	N.D.	ug/l	0.3	5
Hexachlorocyclopentadiene	01/27/12	N.D.	ug/l	2	15
2,4,6-Trichlorophenol	01/27/12	N.D.	ug/l	0.7	5
2-Chloronaphthalene	01/27/12	N.D.	ug/l	0.2	5
Dimethylphthalate	01/27/12	N.D.	ug/l	1	5
2,6-Dinitrotoluene	01/27/12	N.D.	ug/l	0.3	5
Acenaphthylene	01/27/12	N.D.	ug/l	0.3	5
Acenaphthene	01/27/12	N.D.	ug/l	0.3	5
2,4-Dinitrophenol	01/27/12	N.D.	ug/l	10	30
4-Nitrophenol	01/27/12	N.D.	ug/l	5	10
2,4-Dinitrotoluene	01/27/12	N.D.	ug/l	0.4	5

DHR15 0878

Fraction: Semivolatiles by 625

12025WAE625 / SBLKWE025 Analyte	Analysis Date	Blank Results	Units	MDL	LOQ
Diethylphthalate	01/27/12	N.D.	ug/l	0.3	5
4-Chlorophenyl-phenylether	01/27/12	N.D.	ug/l	0.3	5
Fluorene	01/27/12	N.D.	ug/l	0.3	5
4,6-Dinitro-2-methylphenol	01/27/12	N.D.	ug/l	4	15
N-Nitrosodiphenylamine	01/27/12	N.D.	ug/l	0.3	5
1,2-Diphenylhydrazine	01/27/12	N.D.	ug/l	0.2	5
4-Bromophenyl-phenylether	01/27/12	N.D.	ug/l	0.3	5
Hexachlorobenzene	01/27/12	N.D.	ug/l	1	5
Pentachlorophenol	01/27/12	N.D.	ug/l	3	15
Phenanthrene	01/27/12	N.D.	ug/l	0.2	5
Anthracene	01/27/12	N.D.	ug/l	0.2	5
Di-n-butylphthalate	01/27/12	N.D.	ug/l	0.5	5
Fluoranthene	01/27/12	N.D.	ug/l	0.3	5
Benzidine	01/27/12	N.D.	ug/l	20	60
Pyrene	01/27/12	N.D.	ug/l	0.2	5
Butylbenzylphthalate	01/27/12	N.D.	ug/l	0.8	5
bis(2-Ethylhexyl)phthalate	01/27/12	N.D.	ug/l	1	5
3,3'-Dichlorobenzidine	01/27/12	N.D.	ug/l	0.8	5
Benzo(a)anthracene	01/27/12	N.D.	ug/l	0.2	5
Chrysene	01/27/12	N.D.	ug/l	0.2	5
Di-n-octylphthalate	01/27/12	N.D.	ug/l	0.5	5
Benzo(b)fluoranthene	01/27/12	N.D.	ug/l	0.3	5
Benzo(k)fluoranthene	01/27/12	N.D.	ug/l	0.3	5
Benzo(a)pyrene	01/27/12	N.D.	ug/l	0.3	5
Indeno(1,2,3-cd)pyrene	01/27/12	N.D.	ug/l	0.3	5
Dibenz(a,h)anthracene	01/27/12	N.D.	ug/l	0.4	5
Benzo(g,h,i)perylene	01/27/12	N.D.	ug/l	0.2	5

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Quality Control Summary
Surrogates
GC/MS Semivolatiles
SDG: DHR15
Matrix: LIQUID

Fraction: Semivolatiles by 625

12021WAD625	Nitrobenzene-d5		2-Fluorobiphenyl		Terphenyl-d14		Phenol-d6		2-Fluorophenol		2,4,6-Tribromophenol	
	Spike Added	100 ug/l	Spike Added	100 ug/l	Spike Added	100 ug/l	Spike Added	100 ug/l	Spike Added	100 ug/l	Spike Added	100 ug/l
Sample	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits
SBLKWD021	68	56 - 120	64	62 - 121	58	56 - 119	17	10 - 72	29	17 - 103	64	36 - 140
021WDLCS	99	56 - 120	90	62 - 121	86	56 - 119	30	10 - 72	45	17 - 103	100	36 - 140
6526806	99	56 - 120	98	62 - 121	81	56 - 119	25	10 - 72	43	17 - 103	116	36 - 140
6526807	99	56 - 120	84	62 - 121	83	56 - 119	1 *	10 - 72	2 *	17 - 103	39	36 - 140

12025WAE625	Nitrobenzene-d5		2-Fluorobiphenyl		Terphenyl-d14		Phenol-d6		2-Fluorophenol		2,4,6-Tribromophenol	
	Spike Added	100 ug/l	Spike Added	100 ug/l	Spike Added	100 ug/l	Spike Added	100 ug/l	Spike Added	100 ug/l	Spike Added	100 ug/l
Sample	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits	% Recovery	Limits
SBLKWE025	93	56 - 120	96	62 - 121	86	56 - 119	43	10 - 72	58	17 - 103	100	36 - 140
025WELCS	100	56 - 120	95	62 - 121	96	56 - 119	54	10 - 72	67	17 - 103	99	36 - 140
6526806RE	98	56 - 120	98	62 - 121	85	56 - 119	42	10 - 72	69	17 - 103	119	36 - 140
6526807RE	105	56 - 120	99	62 - 121	88	56 - 119	1 *	10 - 72	1 *	17 - 103	49	36 - 140

Surrogate recoveries that are noncompliant are confirmed unless attributed to a dilution or otherwise noted.

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate (LCSD)

SDG: DHR15
Matrix: LIQUID

GC/MS Semivolatiles

Fraction: Semivolatiles by 625

LCS: 021WDLCS	Batch: **12021WAD625** (Sample numbers: 6526806, 6526807)							
Analyte	**Spike Added ug/l**	**LCS Conc ug/l**	**LCSD Conc ug/l**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
N-Nitrosodimethylamine	50	23		46		44-81		
Phenol	50	15.55		31		26-71		
bis(2-Chloroethyl)ether	50	50.7		101		72-114		
2-Chlorophenol	50	41.59		83		78-118		
1,3-Dichlorobenzene	50	34.17		68		67-110		
1,4-Dichlorobenzene	50	35.36		71		68-111		
1,2-Dichlorobenzene	50	38.21		76		60-111		
bis(2-Chloroisopropyl)ether	50	45.94		92		87-134		
N-Nitroso-di-n-propylamine	50	46.49		93		68-114		
Hexachloroethane	50	30.64		61		44-113		
Nitrobenzene	50	48.94		98		74-121		
Isophorone	50	49.73		99		75-123		
2-Nitrophenol	50	49.56		99		77-120		
2,4-Dimethylphenol	50	47.26		95		70-123		
bis(2-Chloroethoxy)methane	50	51.19		102		69-128		
2,4-Dichlorophenol	50	49.12		98		72-127		
1,2,4-Trichlorobenzene	50	42.1		84		70-119		
Naphthalene	50	47.54		95		73-118		
Hexachlorobutadiene	50	37.09		74		58-116		
4-Chloro-3-methylphenol	50	47.62		95		75-113		
Hexachlorocyclopentadiene	100	26.85		27 *		38-133		
2,4,6-Trichlorophenol	50	46.98		94		83-120		
2-Chloronaphthalene	50	47.61		95		57-112		
Dimethylphthalate	50	13.02		26 *		52-122		
2,6-Dinitrotoluene	50	48.93		98		80-115		
Acenaphthylene	50	48.03		96		75-122		
Acenaphthene	50	50.14		100		75-117		
2,4-Dinitrophenol	100	80.95		81		64-140		
4-Nitrophenol	50	19.31		39		27-80		
2,4-Dinitrotoluene	50	52.22		104		74-121		
Diethylphthalate	50	32.75		65 *		74-120		
4-Chlorophenyl-phenylether	50	48.2		96		76-115		
Fluorene	50	46.98		94		74-117		
4,6-Dinitro-2-methylphenol	50	51.55		103		65-120		
N-Nitrosodiphenylamine	50	46.76		94		84-135		
1,2-Diphenylhydrazine	50	52.11		104		75-114		
4-Bromophenyl-phenylether	50	51.81		104		80-112		
Hexachlorobenzene	50	52.94		106		75-114		
Pentachlorophenol	50	43.94		88		55-137		
Phenanthrene	50	50.51		101		77-113		
Anthracene	50	53.75		107		75-116		
Di-n-butylphthalate	50	52.79		106		76-120		

DHR15 P0073

GC/MS Semivolatiles

Fraction: Semivolatiles by 625

LCS: 021WDLCS	Batch: **12021WAD625** (Sample numbers: 6526806, 6526807)							
Analyte	**Spike Added ug/l**	**LCS Conc ug/l**	**LCSD Conc ug/l**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
Fluoranthene	50	51.59		103		86-119		
Benzidine	250	159.79		64		16-104		
Pyrene	50	50.36		101		76-115		
Butylbenzylphthalate	50	49.38		99		80-125		
bis(2-Ethylhexyl)phthalate	50	49.62		99		74-118		
3,3'-Dichlorobenzidine	50	41.17		82		33-124		
Benzo(a)anthracene	50	49.87		100		76-117		
Chrysene	50	51.3		103		81-118		
Di-n-octylphthalate	50	52.45		105		65-155		
Benzo(b)fluoranthene	50	50.64		101		64-145		
Benzo(k)fluoranthene	50	50.73		101		66-145		
Benzo(a)pyrene	50	50.44		101		69-143		
Indeno(1,2,3-cd)pyrene	50	51.48		103		67-143		
Dibenz(a,h)anthracene	50	49.65		99		68-144		
Benzo(g,h,i)perylene	50	50.14		100		66-145		

LCS: 025WELCS	Batch: **12025WAE625** (Sample numbers: 6526806, 652680)							
Analyte	**Spike Added ug/l**	**LCS Conc ug/l**	**LCSD Conc ug/l**	**LCS %Rec**	**LCSD %Rec**	**%Rec Limits**	**%RPD**	**%RPD Limits**
N-Nitrosodimethylamine	50	30.67		61		44-81		
Phenol	50	30.95		62		26-71		
bis(2-Chloroethyl)ether	50	53.59		107		72-114		
2-Chlorophenol	50	50.37		101		78-118		
1,3-Dichlorobenzene	50	45.1		90		67-110		
1,4-Dichlorobenzene	50	44.08		88		68-111		
1,2-Dichlorobenzene	50	45.35		91		60-111		
bis(2-Chloroisopropyl)ether	50	50.4		101		87-134		
N-Nitroso-di-n-propylamine	50	51.55		103		68-114		
Hexachloroethane	50	43.68		87		44-113		
Nitrobenzene	50	52.78		106		74-121		
Isophorone	50	50.95		102		75-123		
2-Nitrophenol	50	49.02		98		77-120		
2,4-Dimethylphenol	50	48.67		97		70-123		
bis(2-Chloroethoxy)methane	50	51.82		104		69-128		
2,4-Dichlorophenol	50	50.61		101		72-127		
1,2,4-Trichlorobenzene	50	44.44		89		70-119		
Naphthalene	50	50.52		101		73-118		
Hexachlorobutadiene	50	45.15		90		58-116		
4-Chloro-3-methylphenol	50	55.62		111		75-113		
Hexachlorocyclopentadiene	100	60.18		60		38-133		
2,4,6-Trichlorophenol	50	53.34		107		83-120		

DHR15 0074

GC/MS Semivolatiles

Fraction: Semivolatiles by 625

LCS: 025WELCS	Batch: 12025WAE625 (Sample numbers: 6526806, 652680)							
Analyte	Spike Added ug/l	LCS Conc ug/l	LCSD Conc ug/l	LCS %Rec	LCSD %Rec	%Rec Limits	%RPD	%RPD Limits
2-Chloronaphthalene	50	47		94		57-112		
Dimethylphthalate	50	51.14		102		52-122		
2,6-Dinitrotoluene	50	52.58		105		80-115		
Acenaphthylene	50	53.75		107		75-122		
Acenaphthene	50	53.01		106		75-117		
2,4-Dinitrophenol	100	102.78		103		64-140		
4-Nitrophenol	50	29.49		59		27-80		
2,4-Dinitrotoluene	50	54.27		109		74-121		
Diethylphthalate	50	51.96		104		74-120		
4-Chlorophenyl-phenylether	50	52.12		104		76-115		
Fluorene	50	48.67		97		74-117		
4,6-Dinitro-2-methylphenol	50	51.52		103		65-120		
N-Nitrosodiphenylamine	50	53.37		107		84-135		
1,2-Diphenylhydrazine	50	55.45		111		75-114		
4-Bromophenyl-phenylether	50	55.12		110		80-112		
Hexachlorobenzene	50	53.41		107		75-114		
Pentachlorophenol	50	43.77		88		55-137		
Phenanthrene	50	53.99		108		77-113		
Anthracene	50	55.42		111		75-116		
Di-n-butylphthalate	50	57.69		115		76-120		
Fluoranthene	50	54.72		109		86-119		
Benzidine	250	113.9		46		16-104		
Pyrene	50	57.5		115		76-115		
Butylbenzylphthalate	50	56.29		113		80-125		
bis(2-Ethylhexyl)phthalate	50	56.32		113		74-118		
3,3'-Dichlorobenzidine	50	36.85		74		33-124		
Benzo(a)anthracene	50	51.53		103		76-117		
Chrysene	50	53.99		108		81-118		
Di-n-octylphthalate	50	55.23		110		65-155		
Benzo(b)fluoranthene	50	56.02		112		64-145		
Benzo(k)fluoranthene	50	50.43		101		66-145		
Benzo(a)pyrene	50	51.84		104		69-143		
Indeno(1,2,3-cd)pyrene	50	48.62		97		67-143		
Dibenz(a,h)anthracene	50	48.6		97		68-144		
Benzo(g,h,i)perylene	50	46.83		94		66-145		

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID: ja0280z.d DFTPP Injection Date: 01/22/12

Instrument ID: HP05525 DFTPP Injection Time: 14:35

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	37.1
68	Less than 2.0% of mass 69	0.18 (0.41)1
69	Mass 69 relative abundance	44.7
70	Less than 2.0% of mass 69	0.17 (0.39)1
127	40.0 - 60.0% of mass 198	48.4
197	Less than 1.0% of mass 198	0.0
198	Base peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	7.61
275	10.0 - 30.0% of mass 198	18.3
365	Greater than 1.00% of mass 198	1.49
441	Present, and less than mass 443	5.84
442	Greater than 40.0 % of mass 198	43.2
443	17.0 - 23.0% of mass 442	8.59 (19.9)2

1-Value is % mass 69 2-Value is % mass of 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	6250102 - SSTD50	ja0281.d	01/22/12	14:58
02	6250102 - SSTD5	ja0282.d	01/22/12	15:36
03	6250102 - SSTD20	ja0283.d	01/22/12	16:06
04	6250102 - SSTD80	ja0284.d	01/22/12	16:37
05	6250102 - SSTD30	ja0285.d	01/22/12	17:07
06	625ICV0182 - STD050	ja0286.d	01/22/12	17:38
07	SBLKWC019	ja0287.d	01/22/12	18:08
08	019WCLCS	ja0288.d	01/22/12	18:38
09	019WCLCSD	ja0289.d	01/22/12	19:09
10	6524949	ja0291.d	01/22/12	20:10
11	6525021	ja0292.d	01/22/12	20:40
12	6526243	ja0293.d	01/22/12	21:11
13	6526244	ja0294.d	01/22/12	21:41
14	6526245	ja0295.d	01/22/12	22:11
15	6526246	ja0296.d	01/22/12	22:42
16	6526247	ja0297.d	01/22/12	23:12
17	6526248	ja0298.d	01/22/12	23:43
18	6526249	ja0299.d	01/23/12	00:13

DHR1S 8876

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID: ja0280z.d DFTPP Injection Date: 01/22/12

Instrument ID: HP05525 DFTPP Injection Time: 14:35

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	37.1
68	Less than 2.0% of mass 69	0.18 (0.41)1
69	Mass 69 relative abundance	44.7
70	Less than 2.0% of mass 69	0.17 (0.39)1
127	40.0 - 60.0% of mass 198	48.4
197	Less than 1.0% of mass 198	0.0
198	Base peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	7.61
275	10.0 - 30.0% of mass 198	18.3
365	Greater than 1.00% of mass 198	1.49
441	Present, and less than mass 443	5.84
442	Greater than 40.0 % of mass 198	43.2
443	17.0 - 23.0% of mass 442	8.59 (19.9)2

1-Value is % mass 69 2-Value is % mass of 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
19	6526250	ja0300.d	01/23/12	00:43
20	6526251	ja0301.d	01/23/12	01:14
21	6526252	ja0302.d	01/23/12	01:44
22	6526253	ja0303.d	01/23/12	02:14
23	6526254	ja0304.d	01/23/12	02:45
24	6526255	ja0305.d	01/23/12	03:15
25	6526256	ja0306.d	01/23/12	03:46
26	6526257	ja0307.d	01/23/12	04:16
27	6524948	ja0290a.d	01/23/12	05:48

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID: ja0310.d DFTPP Injection Date: 01/23/12

Instrument ID: HP05525 DFTPP Injection Time: 16:05

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	40.3
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	44.9
70	Less than 2.0% of mass 69	0.0 (0.0)1
127	40.0 - 60.0% of mass 198	51.1
197	Less than 1.0% of mass 198	0.0
198	Base peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	6.94
275	10.0 - 30.0% of mass 198	16.3
365	Greater than 1.00% of mass 198	1.33
441	Present, and less than mass 443	5.77
442	Greater than 40.0 % of mass 198	42.1
443	17.0 - 23.0% of mass 442	9.21 (21.9)2

1-Value is % mass 69 2-Value is % mass of 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	6250102 - SSTD50	ja0311.d	01/23/12	16:27
02	SBLKWD021	ja0312.d	01/23/12	16:58
03	021WDLCS	ja0313.d	01/23/12	17:28
04	6527104	ja0314.d	01/23/12	17:59
05	6527105MS	ja0315.d	01/23/12	18:29
06	6527106MSD	ja0316.d	01/23/12	19:00
07	6526259	ja0318.d	01/23/12	20:01
08	6526263	ja0319.d	01/23/12	20:32
09	6526264	ja0320.d	01/23/12	21:03
10	6526806	ja0321.d	01/23/12	21:33
11	6526807	ja0322.d	01/23/12	22:04
12	6526973	ja0323.d	01/23/12	22:35
13	6527108	ja0325.d	01/23/12	23:36
14	6527109	ja0326.d	01/24/12	00:07
15	6527110	ja0327.d	01/24/12	00:37
16	6526370	ja0336.d	01/24/12	05:12
17	6527110DL	ja0338.d	01/24/12	06:13
18	6526258	ja0339.d	01/24/12	06:44

2/2/12

DHR15 0078

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID: ja0340z.d DFTPP Injection Date: 01/26/12

Instrument ID: HP05525 DFTPP Injection Time: 18:10

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	36.6
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	41.5
70	Less than 2.0% of mass 69	0.0 (0.0)1
127	40.0 - 60.0% of mass 198	46.8
197	Less than 1.0% of mass 198	0.0
198	Base peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	7.18
275	10.0 - 30.0% of mass 198	17.2
365	Greater than 1.00% of mass 198	1.37
441	Present, and less than mass 443	6.7
442	Greater than 40.0 % of mass 198	48.5
443	17.0 - 23.0% of mass 442	8.9 (18.3)2

1-Value is % mass 69 2-Value is % mass of 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	6250102 - SSTD50	ja0341.d	01/26/12	18:33
02	6250102 - SSTD5	ja0342.d	01/26/12	19:11
03	6250102 - SSTD20	ja0343.d	01/26/12	19:41
04	6250102 - SSTD80	ja0344.d	01/26/12	20:12
05	6250102 - SSTD30	ja0345.d	01/26/12	20:42
06	625ICV0182 - STD050	ja0346.d	01/26/12	21:13
07	SBLKWE024	ja0347.d	01/26/12	21:44
08	024WELCS	ja0352.d	01/27/12	00:16
09	024WELCSD	ja0353.d	01/27/12	00:47
10	SBLKWE025	ja0354.d	01/27/12	01:17
11	025WELCS	ja0355.d	01/27/12	01:48
12	6524514RE	ja0356.d	01/27/12	02:18
13	6527104RE	ja0357.d	01/27/12	02:49
14	6527105RE	ja0358.d	01/27/12	03:20
15	6527106MSD	ja0359.d	01/27/12	03:51
16	6526806RE	ja0360.d	01/27/12	04:57
17	6526807RE	ja0361.d	01/27/12	05:27
18	6527103	ja0362.d	01/27/12	05:58

DHR15 8879

5B

SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID: ja0340z.d DFTPP Injection Date: 01/26/12

Instrument ID: HP05525 DFTPP Injection Time: 18:10

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
51	30.0 - 60.0% of mass 198	36.6
68	Less than 2.0% of mass 69	0.0 (0.0)1
69	Mass 69 relative abundance	41.5
70	Less than 2.0% of mass 69	0.0 (0.0)1
127	40.0 - 60.0% of mass 198	46.8
197	Less than 1.0% of mass 198	0.0
198	Base peak, 100% relative abundance	100.0
199	5.0 to 9.0% of mass 198	7.18
275	10.0 - 30.0% of mass 198	17.2
365	Greater than 1.00% of mass 198	1.37
441	Present, and less than mass 443	6.7
442	Greater than 40.0 % of mass 198	48.5
443	17.0 - 23.0% of mass 442	8.9 (18.3)2

1-Value is % mass 69 2-Value is % mass of 442

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
19	6527108RE	ja0363.d	01/27/12	06:28
20	6527109RE	ja0364.d	01/27/12	06:59
21	6527110RE	ja0365.d	01/27/12	07:30
22	6527111	ja0366.d	01/27/12	08:00
23	6527112	ja0367.d	01/27/12	08:31
24	6527113	ja0368.d	01/27/12	09:01
25	6527114	ja0369.d	01/27/12	09:32
26	6527115	ja0370.d	01/27/12	10:03
27	6527116	ja0371.d	01/27/12	10:33
28	6527117	ja0372.d	01/27/12	11:03
29	6528002	ja0373.d	01/27/12	11:34

DHR15 0000

6B

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP05525 Calibration Date(s): 01/22/12 01/22/12

Calibration Times: 14:58 17:07

LAB FILE ID: RRF5 = ja0282.d RRF30 = ja0285.d
RRF50 = ja0281.d RRF80 = ja0284.d RRF20 = ja0283.d

COMPOUND	RRF5	RRF30	RRF50	RRF80	RRF20	$\overline{RRF}$	% RSD	CAL. METHOD
1,4-Dioxane	0.537	0.560	0.662	0.564	0.598	0.584	8	AVG
N-Nitrosodimethylamine	0.744	0.838	0.976	0.839	0.778	0.835	11	AVG
Pyridine	1.297	1.305	1.533	1.311	1.210	1.331	9	AVG
2-Picoline	1.422	1.478	1.542	1.368	1.329	1.427	6	AVG
N-Nitrosodiethylamine	0.639	0.780	0.744	0.701	0.693	0.711	8	AVG
Aniline	1.728	1.871	1.828	1.646	1.590	1.733	7	AVG
Phenol	1.681	1.541	1.546	1.423	1.394	1.517	8	AVG
bis(2-Chloroethyl)ether	1.397	1.175	1.156	1.083	0.953	1.153	14	AVG
n-Decane	1.188	1.100	1.021	0.902	0.806	1.004	15	AVG
2-Chlorophenol	1.709	1.639	1.460	1.361	1.272	1.488	12	AVG
1,3-Dichlorobenzene	1.851	1.608	1.575	1.546	1.399	1.596	10	AVG
1,4-Dichlorobenzene	1.546	1.593	1.521	1.474	1.347	1.496	6	AVG
Benzyl alcohol	0.791	0.874	0.835	0.825	0.806	0.826	4	AVG
1,2-Dichlorobenzene	1.556	1.492	1.451	1.369	1.284	1.430	7	AVG
2-Methylphenol	1.203	1.160	1.172	1.112	1.064	1.142	5	AVG
2,2'-oxybis(1-Chloropropane)	1.673	1.520	1.597	1.407	1.331	1.506	9	AVG
bis(2-Chloroisopropyl)ether	1.673	1.520	1.597	1.407	1.331	1.506	9	AVG
N-Nitrosopyrrolidine	0.634	0.684	0.639	0.607	0.560	0.625	7	AVG
Acetophenone	1.668	1.564	1.427	1.392	1.258	1.462	11	AVG
N-Nitroso-di-n-propylamine	0.707	0.656	0.615	0.596	0.564	0.628	9	AVG
4-Methylphenol	1.248	1.216	1.182	1.127	1.002	1.155	8	AVG
o-Toluidine	1.736	1.728	1.682	1.562	1.435	1.629	8	AVG
Hexachloroethane	0.649	0.598	0.628	0.555	0.552	0.596	7	AVG
Nitrobenzene	0.301	0.293	0.306	0.289	0.278	0.294	4	AVG
Isophorone	0.609	0.622	0.652	0.581	0.592	0.611	5	AVG
2-Nitrophenol	0.295	0.309	0.307	0.294	0.286	0.298	3	AVG
2,4-Dimethylphenol	0.393	0.353	0.361	0.325	0.342	0.355	7	AVG
bis(2-Chloroethoxy)methane	0.432	0.384	0.390	0.366	0.353	0.385	8	AVG
Benzoic acid	0.249	0.262	0.303	0.275	0.290	0.276	8	AVG
2,4-Dichlorophenol	0.376	0.372	0.372	0.341	0.348	0.362	4	AVG
1,2,4-Trichlorobenzene	0.376	0.365	0.388	0.363	0.357	0.370	3	AVG
a-Terpineol	0.227	0.236	0.222	0.209	0.218	0.222	5	AVG
Naphthalene	1.080	1.063	1.034	0.943	0.925	1.009	7	AVG
4-Chloroaniline	0.447	0.489	0.515	0.474	0.471	0.479	5	AVG
2,6-Dichlorophenol	0.320	0.319	0.326	0.313	0.306	0.317	2	AVG
Hexachlorobutadiene	0.154	0.153	0.150	0.145	0.141	0.149	4	AVG
N-Nitrosodi-n-butylamine	0.188	0.189	0.196	0.188	0.194	0.191	2	AVG
4-Chloro-3-methylphenol	0.319	0.319	0.327	0.307	0.302	0.315	3	AVG
2-Methylnaphthalene	0.785	0.811	0.785	0.764	0.727	0.774	4	AVG
1-Methylnaphthalene	0.730	0.768	0.780	0.716	0.708	0.740	4	AVG
Hexachlorocyclopentadiene	0.132	0.226	0.234	0.274	0.236	0.220	24	AVG
1,2,4,5-Tetrachlorobenzene	0.522	0.516	0.513	0.540	0.453	0.509	6	AVG
2,4,6-Trichlorophenol	0.355	0.348	0.359	0.366	0.299	0.345	8	AVG
2,3-Dichloroaniline	0.720	0.667	0.666	0.672	0.563	0.658	9	AVG
2,4,5-Trichlorophenol	0.374	0.377	0.409	0.428	0.363	0.390	7	AVG
Biphenyl	1.631	1.385	1.392	1.420	1.168	1.399	12	AVG
Diphenyl	1.631	1.385	1.392	1.420	1.168	1.399	12	AVG
1,1'-Biphenyl	1.631	1.385	1.392	1.420	1.168	1.399	12	AVG
2-Chloronaphthalene	1.338	1.169	1.071	1.008	1.150	1.147	11	AVG
Diphenyl ether	0.795	0.737	0.716	0.739	0.636	0.725	8	AVG
n-Tetradecane	0.641	0.518	0.543	0.551	0.463	0.543	12	AVG
2-Nitroaniline	0.483	0.519	0.535	0.540	0.493	0.514	5	AVG

JAB 1/22/12

DHR15 8881

FORM VI SV-1

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP05525 Calibration Date(s): 01/22/12 01/22/12

Calibration Times: 14:58 17:07

LAB FILE ID: RRF5 = ja0282.d RRF30 = ja0285.d
RRF50 = ja0281.d RRF80 = ja0284.d RRF20 = ja0283.d

COMPOUND	RRF5	RRF30	RRF50	RRF80	RRF20	$\overline{RRF}$	% RSD	CAL. METHOD
Dimethylphthalate	1.383	1.305	1.318	1.364	1.233	1.320	4	AVG
2,6-Dinitrotoluene	0.400	0.360	0.378	0.355	0.359	0.370	5	AVG
Acenaphthylene	1.846	1.703	1.716	1.687	1.523	1.695	7	AVG
3-Nitroaniline	0.428	0.463	0.503	0.466	0.474	0.467	6	AVG
Acenaphthene	1.053	1.056	1.019	1.003	0.924	1.011	5	AVG
2,4-Dinitrophenol	0.150	0.206	0.238	0.235	0.234	0.213	17	AVG
Pentachlorobenzene	0.449	0.431	0.400	0.398	0.396	0.415	6	AVG
4-Nitrophenol	0.136	0.149	0.160	0.167	0.161	0.155	8	AVG
Dibenzofuran	1.720	1.477	1.415	1.355	1.205	1.434	13	AVG
2,4-Dinitrotoluene	0.462	0.454	0.458	0.469	0.429	0.454	3	AVG
2,3,4,6-Tetrachlorophenol	0.251	0.293	0.294	0.293	0.287	0.283	6	AVG
n-Hexadecane	0.640	0.531	0.527	0.493	0.429	0.524	15	AVG
Diethylphthalate	1.408	1.140	1.183	1.093	1.015	1.168	13	AVG
Fluorene	1.353	1.201	1.138	1.105	1.003	1.160	11	AVG
4-Chlorophenyl-phenylether	0.630	0.564	0.544	0.514	0.489	0.548	10	AVG
4-Nitroaniline	0.503	0.459	0.436	0.434	0.415	0.449	7	AVG
4,6-Dinitro-2-methylphenol	0.174	0.180	0.184	0.178	0.176	0.178	2	AVG
N-Nitrosodiphenylamine (1)	0.728	0.670	0.638	0.570	0.523	0.626	13	AVG
1,2-Diphenylhydrazine	0.716	0.603	0.607	0.555	0.506	0.597	13	AVG
4-Bromophenyl-phenylether	0.227	0.216	0.204	0.186	0.175	0.201	11	AVG
Hexachlorobenzene	0.240	0.241	0.223	0.213	0.200	0.223	8	AVG
n-Octadecane	0.444	0.402	0.354	0.315	0.259	0.355	20	AVG
Pentachlorophenol	0.117	0.132	0.130	0.118	0.118	0.123	6	AVG
Phenanthrene	1.178	1.079	1.055	0.959	0.907	1.036	10	AVG
Anthracene	1.193	1.140	1.061	1.005	0.916	1.063	10	AVG
Carbazole	1.260	1.188	1.145	1.094	0.987	1.135	9	AVG
Di-n-butylphthalate	1.599	1.529	1.431	1.333	1.176	1.413	12	AVG
1-Methylphenanthrene	0.998	0.834	0.714	0.658	0.599	0.761	21	AVG
n-Docosane	0.473	0.423	0.411	0.355	0.312	0.395	16	AVG
Fluoranthene	1.385	1.247	1.186	1.107	0.985	1.182	13	AVG
Benzidine	0.885	0.854	0.884	0.772	0.698	0.818	10	AVG
n-Eicosane	0.457	0.398	0.387	0.357	0.303	0.380	15	AVG
Pyrene	1.551	1.365	1.327	1.227	1.160	1.326	11	AVG
Butylbenzylphthalate	0.795	0.822	0.859	0.798	0.778	0.810	4	AVG
3,3'-Dichlorobenzidine	0.449	0.485	0.487	0.458	0.442	0.464	4	AVG
Benzo(a)anthracene	1.371	1.226	1.212	1.166	1.168	1.228	7	AVG
Chrysene	1.188	1.131	1.079	1.098	1.054	1.110	5	AVG
bis(2-Ethylhexyl)phthalate	1.140	1.106	1.110	1.059	1.000	1.083	5	AVG
Di-n-octylphthalate	1.701	1.752	1.810	1.637	1.440	1.668	9	AVG
Benzo(b)fluoranthene	1.275	1.149	1.229	1.163	1.009	1.165	9	AVG
Benzo(k)fluoranthene	1.212	1.155	1.077	0.975	0.942	1.072	11	AVG
Benzo(a)pyrene	1.154	1.174	1.197	1.105	1.030	1.132	6	AVG
Indeno(1,2,3-cd)pyrene	1.203	1.285	1.354	1.288	1.068	1.240	9	AVG
Dibenz(a,h)anthracene	0.981	1.037	1.057	1.013	0.874	0.993	7	AVG
Benzo(g,h,i)perylene	1.095	1.166	1.184	1.206	0.942	1.119	10	AVG
2-Fluorophenol	1.468	1.483	1.519	1.411	1.311	1.438	6	AVG
Phenol-d5	1.623	1.651	1.682	1.574	1.575	1.621	3	AVG
Phenol-d6	1.623	1.651	1.682	1.574	1.575	1.621	3	AVG
Nitrobenzene-d5	0.303	0.309	0.328	0.299	0.295	0.307	4	AVG
2-Fluorobiphenyl	1.257	1.113	1.133	1.144	0.947	1.119	10	AVG
2,4,6-Tribromophenol	0.171	0.169	0.173	0.168	0.174	0.171	2	AVG
Terphenyl-d14	0.954	0.912	0.897	0.847	0.828	0.887	6	AVG
					Average %RSD		8	

4,6-Dinitro-2-methylphenol and 4-Nitrophenol are at 10 ng/ul in the 5 standard.
Benzidine Levels in the 5,30,50,80,120 standards are 15,90,150,240,360 ng/ul, respectively.
Benzoic acid, Pentachlorophenol and 2,4-Dinitrophenol are at 15 ng/ul,40 ng/ul in the 5,30 standards.

DHR15 #882

Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem/HP05525.i/12jan22.b/ja0281.d STD050
/chem/HP05525.i/12jan22.b/ja0282.d STD005
/chem/HP05525.i/12jan22.b/ja0283.d STD120
/chem/HP05525.i/12jan22.b/ja0284.d STD080
/chem/HP05525.i/12jan22.b/ja0285.d STD030

Area Summary

	File ID:							
Internal Standard Name	ja0281.d	ja0282.d	ja0283.d	ja0284.d	ja0285.d	Avg. Area	%RSD	In Spec
1,4-Dichlorobenzene-d4	169215	156486	131805	129795	136486	144757	12	Yes
2-Fluoronaphthalene	542573	500649	416430	429628	457655	469387	11	Yes
Acenaphthene-d10	338816	279112	264656	245256	283475	282263	12	Yes
Phenanthrene-d10	520955	427294	423326	392333	416280	436038	11	Yes
Chrysene-d12	450124	408135	350976	342066	377236	385707	11	Yes
Perylene-d12	470572	410011	425099	376851	410489	418604	8	Yes

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

	File ID:					
Internal Standard Name	ja0281.d	ja0282.d	ja0283.d	ja0284.d	ja0285.d	Avg. RT
1,4-Dichlorobenzene-d4	6.796	6.790	6.792	6.789	6.792	6.792
2-Fluoronaphthalene	8.364	8.368	8.370	8.365	8.363	8.366
Acenaphthene-d10	10.642	10.643	10.646	10.642	10.636	10.642
Phenanthrene-d10	12.580	12.575	12.595	12.580	12.575	12.581
Chrysene-d12	16.399	16.377	16.415	16.403	16.384	16.396
Perylene-d12	19.124	19.103	19.133	19.127	19.107	19.119

Comments: MB 1/22/12 1/22/12

Report generated on 01/22/2012 at 17:48

DNR15 0003

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS LAB CODE: LANCAS INSTRUMENT: HP05525

Method: EPA 625 File ID: ja0286.d

ICV SAMPLE ID: 625ICV0182 BATCH: 12JAN22625 Sample Name: STD050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
1,4-Dioxane	50.00	36.56	-27	30	YES
N-Nitrosodimethylamine	50.00	44.52	-11	30	YES
Pyridine	50.00	43.08	-14	30	YES
2-Picoline	50.00	37.64	-25	30	YES
2-Fluorophenol	50.00	46.72	-7	30	YES
N-Nitrosodiethylamine	50.00	57.39	15	30	YES
Phenol-d5	50.00	51.04	2	30	YES
Phenol-d6	50.00	51.04	2	30	YES
Phenol	50.00	50.85	2	30	YES
Aniline	50.00	49.01	-2	30	YES
bis(2-Chloroethyl)ether	50.00	47.62	-5	30	YES
2-Chlorophenol	50.00	48.11	-4	30	YES
n-Decane	50.00	51.38	3	30	YES
1,3-Dichlorobenzene	50.00	49.69	-1	30	YES
1,4-Dichlorobenzene	50.00	50.33	1	30	YES
Benzyl alcohol	50.00	50.17	0	30	YES
1,2-Dichlorobenzene	50.00	52.94	6	30	YES
2-Methylphenol	50.00	51.88	4	30	YES
2,2'-oxybis(1-Chloropropane	50.00	46.91	-6	30	YES
bis(2-Chloroisopropyl)ether	50.00	46.91	-6	30	YES
N-Nitrosopyrrolidine	50.00	66.82	34	30	NO#
Acetophenone	50.00	48.86	-2	30	YES
4-Methylphenol	50.00	52.01	4	30	YES
N-Nitroso-di-n-propylamine	50.00	50.55	1	30	YES
o-Toluidine	50.00	50.90	2	30	YES
Hexachloroethane	50.00	45.82	-8	30	YES
Nitrobenzene-d5	50.00	54.22	8	30	YES
Nitrobenzene	50.00	49.64	-1	30	YES
Isophorone	50.00	48.49	-3	30	YES
2-Nitrophenol	50.00	52.57	5	30	YES
2,4-Dimethylphenol	50.00	49.38	-1	30	YES
Benzoic acid	50.00	47.96	-4	30	YES
bis(2-Chloroethoxy)methane	50.00	49.06	-2	30	YES
2,4-Dichlorophenol	50.00	52.44	5	30	YES
1,2,4-Trichlorobenzene	50.00	53.35	7	30	YES
Naphthalene	50.00	49.29	-1	30	YES
a-Terpineol	50.00	50.66	1	30	YES

NC = Could not calculate

Comments:

Rx any nita

MBlack 1/22/12

DHR15 6884

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS LAB CODE: LANCAS INSTRUMENT: HP05525

Method: EPA 625 File ID: ja0286.d

ICV SAMPLE ID: 625ICV0182 BATCH: 12JAN22625 Sample Name: STD050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
4-Chloroaniline	50.00	53.93	8	30	YES
2,6-Dichlorophenol	50.00	64.23	28	30	YES
Hexachlorobutadiene	50.00	49.88	0	30	YES
N-Nitrosodi-n-butylamine	50.00	61.36	23	30	YES
4-Chloro-3-methylphenol	50.00	48.56	-3	30	YES
2-Methylnaphthalene	50.00	50.89	2	30	YES
1-Methylnaphthalene	50.00	51.16	2	30	YES
Hexachlorocyclopentadiene	100.00	99.02	-1	30	YES
1,2,4,5-Tetrachlorobenzene	50.00	45.97	-8	30	YES
2,4,6-Trichlorophenol	50.00	48.97	-2	30	YES
2,3-Dichloroaniline	50.00	50.69	1	30	YES
2,4,5-Trichlorophenol	50.00	47.98	-4	30	YES
2-Fluorobiphenyl	50.00	47.35	-5	30	YES
Biphenyl	50.00	44.55	-11	30	YES
Diphenyl	50.00	44.55	-11	30	YES
1,1'-Biphenyl	50.00	44.55	-11	30	YES
n-Tetradecane	50.00	47.63	-5	30	YES
2-Chloronaphthalene	50.00	43.08	-14	30	YES
Diphenyl ether	50.00	46.72	-7	30	YES
2-Nitroaniline	50.00	46.37	-7	30	YES
Dimethylphthalate	50.00	45.60	-9	30	YES
2,6-Dinitrotoluene	50.00	45.46	-9	30	YES
Acenaphthylene	50.00	45.81	-8	30	YES
3-Nitroaniline	50.00	48.03	-4	30	YES
Acenaphthene	50.00	45.85	-8	30	YES
2,4-Dinitrophenol	50.00	49.05	-2	30	YES
4-Nitrophenol	50.00	49.11	-2	30	YES
Pentachlorobenzene	50.00	62.16	24	30	YES
2,4-Dinitrotoluene	50.00	48.23	-4	30	YES
Dibenzofuran	50.00	47.72	-5	30	YES
2,3,4,6-Tetrachlorophenol	50.00	47.43	-5	30	YES
Diethylphthalate	50.00	41.52	-17	30	YES
n-Hexadecane	50.00	46.28	-7	30	YES
Fluorene	50.00	45.92	-8	30	YES
4-Chlorophenyl-phenylether	50.00	45.47	-9	30	YES
4-Nitroaniline	50.00	45.49	-9	30	YES
4,6-Dinitro-2-methylphenol	50.00	53.98	8	30	YES

NC = Could not calculate

Comments:

DHR15 0005

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS LAB CODE: LANCAS INSTRUMENT: HP05525

Method: EPA 625 File ID: ja0286.d

ICV SAMPLE ID: 625ICV0182 BATCH: 12JAN22625 Sample Name: STD050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
N-Nitrosodiphenylamine	50.00	55.14	10	30	YES
1,2-Diphenylhydrazine	50.00	47.45	-5	30	YES
2,4,6-Tribromophenol	50.00	50.54	1	30	YES
4-Bromophenyl-phenylether	50.00	48.33	-3	30	YES
Hexachlorobenzene	50.00	53.83	8	30	YES
Pentachlorophenol	50.00	50.87	2	30	YES
n-Octadecane	50.00	51.08	2	30	YES
Phenanthrene	50.00	46.60	-7	30	YES
Anthracene	50.00	50.51	1	30	YES
Carbazole	50.00	51.38	3	30	YES
Di-n-butylphthalate	50.00	53.06	6	30	YES
1-Methylphenanthrene	50.00	53.08	6	30	YES
n-Docosane	50.00	52.53	5	30	YES
Fluoranthene	50.00	49.51	-1	30	YES
Benzidine	250.00	216.69	-13	30	YES
Pyrene	50.00	49.33	-1	30	YES
n-Eicosane	50.00	44.43	-11	30	YES
Terphenyl-d14	50.00	52.06	4	30	YES
Butylbenzylphthalate	50.00	50.87	2	30	YES
3,3'-Dichlorobenzidine	50.00	50.87	2	30	YES
Benzo(a)anthracene	50.00	50.88	2	30	YES
Chrysene	50.00	50.21	0	30	YES
bis(2-Ethylhexyl)phthalate	50.00	50.29	1	30	YES
Di-n-octylphthalate	50.00	49.46	-1	30	YES
Benzo(b)fluoranthene	50.00	46.35	-7	30	YES
Benzo(k)fluoranthene	50.00	46.54	-7	30	YES
Benzo(a)pyrene	50.00	48.44	-3	30	YES
Indeno(1,2,3-cd)pyrene	50.00	50.65	1	30	YES
Dibenz(a,h)anthracene	50.00	50.18	0	30	YES
Benzo(g,h,i)perylene	50.00	49.85	0	30	YES

NC = Could not calculate

Comments: _____

DW#15 8086

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP05525 Calibration Date(s): 01/26/12 01/26/12

Calibration Times: 18:33 20:42

LAB FILE ID: RRF5 = ja0342.d RRF30 = ja0345.d
RRF50 = ja0341.d RRF80 = ja0344.d RRF20 = ja0343.d

COMPOUND	RRF5	RRF30	RRF50	RRF80	RRF20	$\overline{RRF}$	% RSD	CAL. METHOD
1,4-Dioxane	0.535	0.553	0.669	0.596	0.575	0.586	9	AVG
N-Nitrosodimethylamine	0.719	0.840	0.942	0.936	0.890	0.865	11	AVG
Pyridine	1.356	1.331	1.402	1.336	1.279	1.341	3	AVG
2-Picoline	1.617	1.400	1.534	1.530	1.419	1.500	6	AVG
N-Nitrosodiethylamine	0.686	0.722	0.728	0.763	0.705	0.721	4	AVG
Aniline	2.075	1.789	1.800	1.757	1.652	1.815	9	AVG
Phenol	1.774	1.570	1.581	1.517	1.457	1.580	8	AVG
bis(2-Chloroethyl)ether	1.435	1.188	1.169	1.125	1.001	1.183	13	AVG
n-Decane	1.258	1.001	1.002	0.936	0.837	1.007	15	AVG
2-Chlorophenol	1.566	1.548	1.434	1.396	1.278	1.444	8	AVG
1,3-Dichlorobenzene	1.692	1.547	1.535	1.526	1.386	1.537	7	AVG
1,4-Dichlorobenzene	1.690	1.498	1.486	1.463	1.423	1.512	7	AVG
Benzyl alcohol	0.711	0.820	0.835	0.868	0.829	0.813	7	AVG
1,2-Dichlorobenzene	1.609	1.408	1.557	1.397	1.320	1.458	8	AVG
2-Methylphenol	1.206	1.189	1.212	1.176	1.124	1.181	3	AVG
2,2'-oxybis(1-Chloropropane)	1.675	1.450	1.522	1.446	1.420	1.503	7	AVG
bis(2-Chloroisopropyl)ether	1.675	1.450	1.522	1.446	1.420	1.503	7	AVG
N-Nitrosopyrrolidine	0.641	0.648	0.677	0.599	0.580	0.629	6	AVG
Acetophenone	1.908	1.522	1.501	1.463	1.319	1.543	14	AVG
N-Nitroso-di-n-propylamine	0.678	0.627	0.598	0.594	0.555	0.610	7	AVG
4-Methylphenol	1.281	1.214	1.241	1.132	1.011	1.176	9	AVG
o-Toluidine	1.926	1.708	1.729	1.662	1.518	1.709	9	AVG
Hexachloroethane	0.628	0.579	0.564	0.563	0.531	0.573	6	AVG
Nitrobenzene	0.318	0.299	0.306	0.270	0.266	0.292	8	AVG
Isophorone	0.700	0.662	0.664	0.626	0.610	0.652	5	AVG
2-Nitrophenol	0.314	0.310	0.310	0.300	0.296	0.306	3	AVG
2,4-Dimethylphenol	0.388	0.388	0.379	0.343	0.334	0.366	7	AVG
bis(2-Chloroethoxy)methane	0.427	0.393	0.403	0.393	0.348	0.393	7	AVG
Benzoic acid	0.236	0.249	0.254	0.266	0.271	0.255	5	AVG
2,4-Dichlorophenol	0.385	0.386	0.376	0.355	0.350	0.370	5	AVG
1,2,4-Trichlorobenzene	0.398	0.397	0.410	0.362	0.349	0.383	7	AVG
a-Terpineol	0.251	0.228	0.233	0.219	0.203	0.227	8	AVG
Naphthalene	1.194	1.090	1.057	0.992	0.916	1.050	10	AVG
4-Chloroaniline	0.517	0.532	0.529	0.492	0.478	0.510	5	AVG
2,6-Dichlorophenol	0.344	0.350	0.340	0.328	0.301	0.333	6	AVG
Hexachlorobutadiene	0.162	0.155	0.152	0.146	0.136	0.150	7	AVG
N-Nitrosodi-n-butylamine	0.193	0.194	0.199	0.185	0.183	0.191	3	AVG
4-Chloro-3-methylphenol	0.322	0.331	0.362	0.320	0.310	0.329	6	AVG
2-Methylnaphthalene	0.823	0.878	0.843	0.771	0.777	0.818	6	AVG
1-Methylnaphthalene	0.831	0.788	0.785	0.763	0.707	0.775	6	AVG
Hexachlorocyclopentadiene	0.040	0.158	0.173	0.184	0.200	0.151	42	1STDEG
1,2,4,5-Tetrachlorobenzene	0.537	0.527	0.486	0.477	0.458	0.497	7	AVG
2,4,6-Trichlorophenol	0.343	0.353	0.320	0.312	0.291	0.324	8	AVG
2,3-Dichloroaniline	0.726	0.684	0.652	0.603	0.572	0.647	10	AVG
2,4,5-Trichlorophenol	0.339	0.387	0.385	0.373	0.366	0.370	5	AVG
Biphenyl	1.651	1.449	1.366	1.371	1.174	1.402	12	AVG
Diphenyl	1.651	1.449	1.366	1.371	1.174	1.402	12	AVG
1,1'-Biphenyl	1.651	1.449	1.366	1.371	1.174	1.402	12	AVG
2-Chloronaphthalene	1.143	1.027	1.204	0.919	0.940	1.047	12	AVG
Diphenyl ether	0.771	0.685	0.696	0.663	0.632	0.689	7	AVG
n-Tetradecane	0.602	0.529	0.518	0.505	0.462	0.523	10	AVG
2-Nitroaniline	0.535	0.514	0.560	0.508	0.512	0.526	4	AVG

KBlake 1/26/12

DHR15 0887

SEMIVOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP05525 Calibration Date(s): 01/26/12 01/26/12

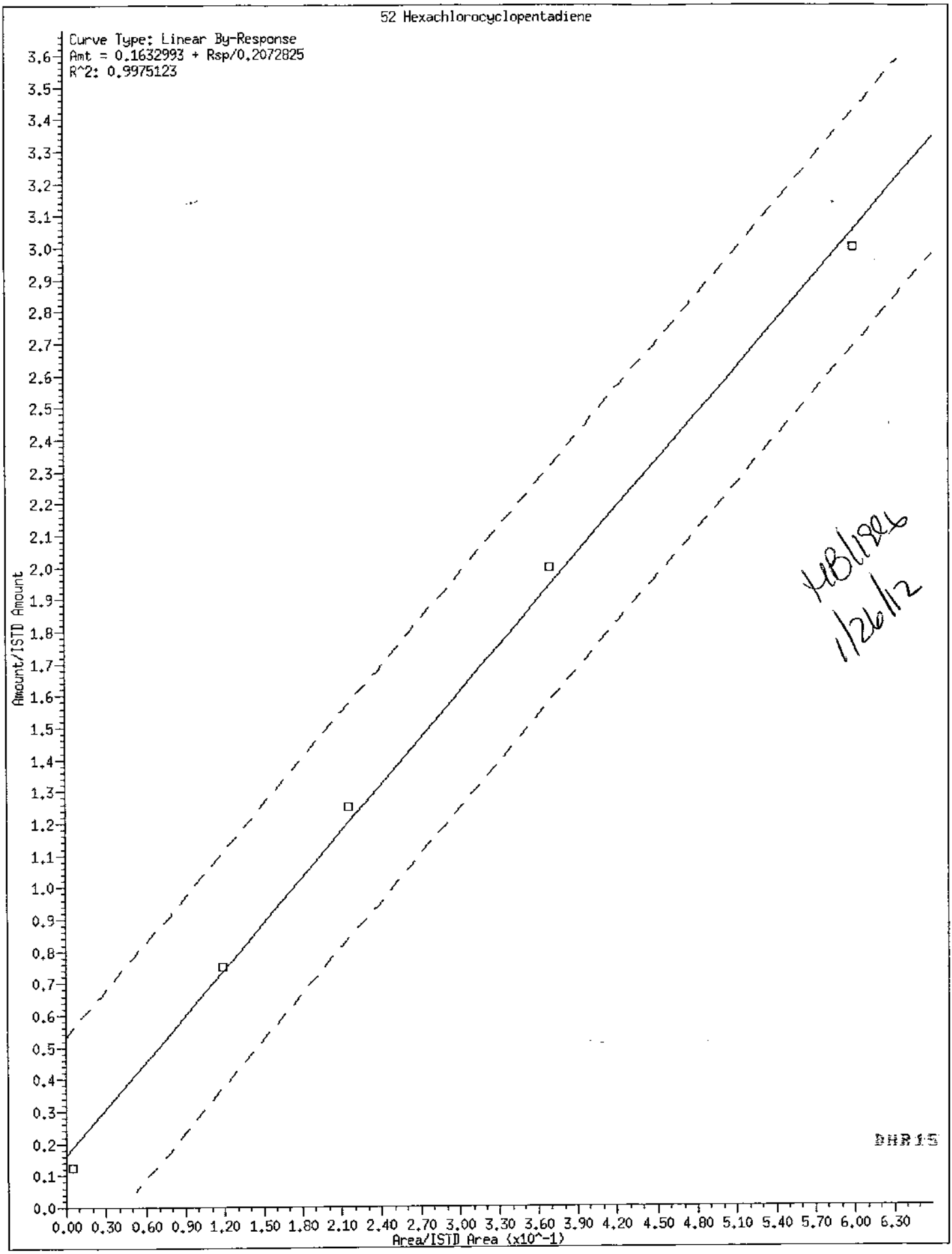
Calibration Times: 18:33 20:42

LAB FILE ID: RRF5 = ja0342.d RRF30 = ja0345.d
RRF50 = ja0341.d RRF80 = ja0344.d RRF20 = ja0343.d

COMPOUND	RRF5	RRF30	RRF50	RRF80	RRF20	$\overline{RRF}$	% RSD	CAL. METHOD
Dimethylphthalate	1.390	1.315	1.350	1.263	1.225	1.309	5	AVG
2,6-Dinitrotoluene	0.366	0.346	0.363	0.332	0.341	0.350	4	AVG
Acenaphthylene	1.852	1.769	1.738	1.632	1.570	1.712	7	AVG
3-Nitroaniline	0.441	0.479	0.509	0.497	0.464	0.478	6	AVG
Acenaphthene	1.045	1.056	1.095	1.039	0.949	1.037	5	AVG
2,4-Dinitrophenol	0.101	0.174	0.186	0.200	0.210	0.174	25	AVG
Pentachlorobenzene	0.422	0.415	0.409	0.400	0.371	0.403	5	AVG
4-Nitrophenol	0.103	0.133	0.146	0.142	0.151	0.135	14	AVG
Dibenzofuran	1.597	1.415	1.408	1.348	1.193	1.392	10	AVG
2,4-Dinitrotoluene	0.488	0.445	0.467	0.461	0.408	0.454	7	AVG
2,3,4,6-Tetrachlorophenol	0.240	0.272	0.275	0.271	0.268	0.265	5	AVG
n-Hexadecane	0.588	0.502	0.515	0.494	0.429	0.506	11	AVG
Diethylphthalate	1.368	1.151	1.138	1.127	1.048	1.167	10	AVG
Fluorene	1.353	1.149	1.153	1.147	1.008	1.162	11	AVG
4-Chlorophenyl-phenylether	0.599	0.559	0.562	0.538	0.499	0.551	7	AVG
4-Nitroaniline	0.513	0.442	0.467	0.450	0.417	0.458	8	AVG
4,6-Dinitro-2-methylphenol	0.172	0.181	0.178	0.184	0.177	0.179	2	AVG
N-Nitrosodiphenylamine (1)	0.762	0.672	0.602	0.632	0.536	0.641	13	AVG
1,2-Diphenylhydrazine	0.650	0.600	0.541	0.576	0.508	0.575	9	AVG
4-Bromophenyl-phenylether	0.219	0.224	0.192	0.199	0.186	0.204	8	AVG
Hexachlorobenzene	0.242	0.256	0.221	0.236	0.216	0.234	7	AVG
n-Octadecane	0.428	0.401	0.355	0.330	0.271	0.357	17	AVG
Pentachlorophenol	0.092	0.111	0.107	0.108	0.105	0.105	7	AVG
Phenanthrene	1.162	1.122	1.038	1.026	0.932	1.056	8	AVG
Anthracene	1.205	1.158	1.078	1.081	0.954	1.095	9	AVG
Carbazole	1.254	1.205	1.157	1.164	1.041	1.164	7	AVG
Di-n-butylphthalate	1.759	1.573	1.504	1.463	1.332	1.526	10	AVG
1-Methylphenanthrene	1.003	0.828	0.767	0.770	0.588	0.791	19	AVG
n-Docosane	0.456	0.435	0.371	0.390	0.323	0.395	13	AVG
Fluoranthene	1.373	1.229	1.236	1.181	1.036	1.211	10	AVG
Benzidine	0.853	0.803	0.800	0.770	0.630	0.771	11	AVG
n-Eicosane	0.431	0.392	0.372	0.381	0.323	0.380	10	AVG
Pyrene	1.416	1.367	1.245	1.376	1.145	1.310	9	AVG
Butylbenzylphthalate	0.805	0.851	0.846	0.881	0.832	0.843	3	AVG
3,3'-Dichlorobenzidine	0.474	0.507	0.508	0.475	0.438	0.481	6	AVG
Benzo(a)anthracene	1.381	1.295	1.288	1.201	1.189	1.271	6	AVG
Chrysene	1.188	1.169	1.159	1.119	1.060	1.139	4	AVG
bis(2-Ethylhexyl)phthalate	1.147	1.184	1.137	1.133	1.065	1.133	4	AVG
Di-n-octylphthalate	1.888	1.900	1.820	1.736	1.551	1.779	8	AVG
Benzo(b)fluoranthene	1.388	1.227	1.114	1.132	1.002	1.172	12	AVG
Benzo(k)fluoranthene	1.199	1.110	1.025	1.047	0.871	1.050	12	AVG
Benzo(a)pyrene	1.115	1.203	1.145	1.137	1.050	1.130	5	AVG
Indeno(1,2,3-cd)pyrene	1.322	1.325	1.252	1.292	1.075	1.253	8	AVG
Dibenz(a,h)anthracene	1.122	1.053	0.968	1.032	0.870	1.009	9	AVG
Benzo(g,h,i)perylene	1.120	1.146	1.090	1.135	0.892	1.077	10	AVG
2-Fluorophenol	1.526	1.528	1.550	1.476	1.414	1.499	4	AVG
Phenol-d5	1.851	1.691	1.702	1.672	1.589	1.701	6	AVG
Phenol-d6	1.851	1.691	1.702	1.672	1.589	1.701	6	AVG
Nitrobenzene-d5	0.305	0.320	0.333	0.295	0.291	0.309	6	AVG
2-Fluorobiphenyl	1.309	1.105	1.085	1.098	0.951	1.110	12	AVG
2,4,6-Tribromophenol	0.165	0.175	0.173	0.179	0.167	0.172	3	AVG
Terphenyl-d14	0.879	0.880	0.820	0.892	0.791	0.853	5	AVG
					Average %RSD		8	

4,6-Dinitro-2-methylphenol and 4-Nitrophenol are at 10 ng/ul in the 5 standard.
Benzidine Levels in the 5,30,50,80,120 standards are 15,90,150,240,360 ng/ul, respectively.
Benzoic acid, Pentachlorophenol and 2,4-Dinitrophenol are at 15 ng/ul,40 ng/ul in the 5,30 standards.

DHR15 8888


52 Hexachlorocyclopentadiene
Curve Type: Linear By-Response
Amt = 0.1632993 + Rsp/0.2072825
R^2: 0.9975123
Amount/ISTD Amount
Area/ISTD Area (x10^-1)
MB/1926
1/26/12
DHR15 0009

Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem/HP05525.i/12jan26a.b/ja0341.d STD050
/chem/HP05525.i/12jan26a.b/ja0342.d STD005
/chem/HP05525.i/12jan26a.b/ja0343.d STD120
/chem/HP05525.i/12jan26a.b/ja0344.d STD080
/chem/HP05525.i/12jan26a.b/ja0345.d STD030

Area Summary

File ID:

Internal Standard Name	ja0341.d	ja0342.d	ja0343.d	ja0344.d	ja0345.d	Avg. Area	%RSD	In Spec
1,4-Dichlorobenzene-d4	140397	143433	117400	115878	156812	134784	13	Yes
2-Fluoronaphthalene	435929	461333	387719	392142	490590	433543	10	Yes
Acenaphthene-d10	282022	280790	246086	244238	316703	273968	11	Yes
Phenanthrene-d10	448904	415292	378042	361769	457286	412259	10	Yes
Chrysene-d12	423482	401319	325982	314935	401095	373363	13	Yes
Perylene-d12	451443	391278	376738	350672	431567	400340	10	Yes

%RSD of internal standard area is flagged out of spec if greater than 30.

RT Summary

File ID:

Internal Standard Name	ja0341.d	ja0342.d	ja0343.d	ja0344.d	ja0345.d	Avg. RT
1,4-Dichlorobenzene-d4	6.783	6.778	6.782	6.781	6.781	6.781
2-Fluoronaphthalene	8.364	8.352	8.362	8.361	8.363	8.360
Acenaphthene-d10	10.637	10.630	10.647	10.636	10.639	10.638
Phenanthrene-d10	12.577	12.566	12.579	12.580	12.574	12.575
Chrysene-d12	16.390	16.367	16.404	16.392	16.386	16.388
Perylene-d12	19.100	19.090	19.118	19.111	19.104	19.105

Comments: HB 1/26/12

Report generated on 01/26/2012 at 21:14

DHB15 0898

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS LAB CODE: LANCAS INSTRUMENT: HP05525

Method: EPA 625 File ID: ja0346.d

ICV SAMPLE ID: 625ICV0182 BATCH: 12JAN26A625 Sample Name: STD050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
1,4-Dioxane	50.00	43.17	-14	30	YES
N-Nitrosodimethylamine	50.00	48.82	-2	30	YES
Pyridine	50.00	46.39	-7	30	YES
2-Picoline	50.00	37.74	-25	30	YES
2-Fluorophenol	50.00	44.92	-10	30	YES
N-Nitrosodiethylamine	50.00	56.31	13	30	YES
Phenol-d5	50.00	49.00	-2	30	YES
Phenol-d6	50.00	49.00	-2	30	YES
Phenol	50.00	48.49	-3	30	YES
Aniline	50.00	45.85	-8	30	YES
bis(2-Chloroethyl)ether	50.00	48.76	-2	30	YES
2-Chlorophenol	50.00	49.70	-1	30	YES
n-Decane	50.00	49.53	-1	30	YES
1,3-Dichlorobenzene	50.00	52.82	6	30	YES
1,4-Dichlorobenzene	50.00	48.12	-4	30	YES
Benzyl alcohol	50.00	48.91	-2	30	YES
1,2-Dichlorobenzene	50.00	49.71	-1	30	YES
2-Methylphenol	50.00	49.27	-1	30	YES
2,2'-oxybis(1-Chloropropane	50.00	47.00	-6	30	YES
bis(2-Chloroisopropyl)ether	50.00	47.00	-6	30	YES
N-Nitrosopyrrolidine	50.00	63.10	26	30	YES
Acetophenone	50.00	45.65	-9	30	YES
4-Methylphenol	50.00	48.89	-2	30	YES
N-Nitroso-di-n-propylamine	50.00	49.28	-1	30	YES
o-Toluidine	50.00	48.17	-4	30	YES
Hexachloroethane	50.00	48.03	-4	30	YES
Nitrobenzene-d5	50.00	52.16	4	30	YES
Nitrobenzene	50.00	53.28	7	30	YES
Isophorone	50.00	49.43	-1	30	YES
2-Nitrophenol	50.00	52.63	5	30	YES
2,4-Dimethylphenol	50.00	50.70	1	30	YES
Benzoic acid	50.00	44.66	-11	30	YES
bis(2-Chloroethoxy)methane	50.00	48.90	-2	30	YES
2,4-Dichlorophenol	50.00	54.59	9	30	YES
1,2,4-Trichlorobenzene	50.00	50.43	1	30	YES
Naphthalene	50.00	50.41	1	30	YES
a-Terpineol	50.00	52.31	5	30	YES

NC = Could not calculate

Comments:

MB/1826
1/26/12

DHR15 0091

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS LAB CODE: LANCAS INSTRUMENT: HP05525

Method: EPA 625 File ID: ja0346.d

ICV SAMPLE ID: 625ICV0182 BATCH: 12JAN26A625 Sample Name: STD050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D window	INSPEC
4-Chloroaniline	50.00	53.30	7	30	YES
2,6-Dichlorophenol	50.00	62.30	25	30	YES
Hexachlorobutadiene	50.00	50.74	1	30	YES
N-Nitrosodi-n-butylamine	50.00	64.59	29	30	YES
4-Chloro-3-methylphenol	50.00	53.61	7	30	YES
2-Methylnaphthalene	50.00	51.66	3	30	YES
1-Methylnaphthalene	50.00	51.41	3	30	YES
Hexachlorocyclopentadiene	100.00	92.77	-7	30	YES
1,2,4,5-Tetrachlorobenzene	50.00	48.16	-4	30	YES
2,4,6-Trichlorophenol	50.00	49.42	-1	30	YES
2,3-Dichloroaniline	50.00	50.49	1	30	YES
2,4,5-Trichlorophenol	50.00	48.73	-3	30	YES
2-Fluorobiphenyl	50.00	47.92	-4	30	YES
Biphenyl	50.00	44.90	-10	30	YES
Diphenyl	50.00	44.90	-10	30	YES
1,1'-Biphenyl	50.00	44.90	-10	30	YES
n-Tetradecane	50.00	51.28	3	30	YES
2-Chloronaphthalene	50.00	54.63	9	30	YES
Diphenyl ether	50.00	46.18	-8	30	YES
2-Nitroaniline	50.00	46.95	-6	30	YES
Dimethylphthalate	50.00	45.65	-9	30	YES
2,6-Dinitrotoluene	50.00	47.74	-5	30	YES
Acenaphthylene	50.00	45.92	-8	30	YES
3-Nitroaniline	50.00	49.95	0	30	YES
Acenaphthene	50.00	46.83	-6	30	YES
2,4-Dinitrophenol	50.00	49.00	-2	30	YES
4-Nitrophenol	50.00	50.58	1	30	YES
Pentachlorobenzene	50.00	57.76	16	30	YES
2,4-Dinitrotoluene	50.00	47.40	-5	30	YES
Dibenzofuran	50.00	47.53	-5	30	YES
2,3,4,6-Tetrachlorophenol	50.00	53.03	6	30	YES
Diethylphthalate	50.00	43.97	-12	30	YES
n-Hexadecane	50.00	47.74	-5	30	YES
Fluorene	50.00	46.86	-6	30	YES
4-Chlorophenyl-phenylether	50.00	46.05	-8	30	YES
4-Nitroaniline	50.00	50.87	2	30	YES
4,6-Dinitro-2-methylphenol	50.00	49.51	-1	30	YES

NC = Could not calculate

Comments: _____

DHB15 0092

Lancaster Laboratories, Inc.
Semi Volatile Initial Calibration Verification

LAB NAME: LANCASTER LABS LAB CODE: LANCAS INSTRUMENT: HP05525

Method: EPA 625 File ID: ja0346.d

ICV SAMPLE ID: 625ICV0182 BATCH: 12JAN26A625 Sample Name: STD050

COMPOUND NAME	TRUE CONC.	ACTUAL CONC.	% DRIFT	%D Window	INSPEC
N-Nitrosodiphenylamine	50.00	52.68	5	30	YES
1,2-Diphenylhydrazine	50.00	49.77	0	30	YES
2,4,6-Tribromophenol	50.00	49.86	0	30	YES
4-Bromophenyl-phenylether	50.00	49.85	0	30	YES
Hexachlorobenzene	50.00	48.96	-2	30	YES
Pentachlorophenol	50.00	51.17	2	30	YES
n-Octadecane	50.00	53.23	6	30	YES
Phenanthrene	50.00	50.70	1	30	YES
Anthracene	50.00	49.07	-2	30	YES
Carbazole	50.00	50.88	2	30	YES
Di-n-butylphthalate	50.00	49.55	-1	30	YES
1-Methylphenanthrene	50.00	52.81	6	30	YES
n-Docosane	50.00	53.01	6	30	YES
Fluoranthene	50.00	47.99	-4	30	YES
Benzidine	250.00	222.17	-11	30	YES
Pyrene	50.00	48.99	-2	30	YES
n-Eicosane	50.00	50.10	0	30	YES
Terphenyl-d14	50.00	52.64	5	30	YES
Butylbenzylphthalate	50.00	48.70	-3	30	YES
3,3'-Dichlorobenzidine	50.00	49.74	-1	30	YES
Benzo(a)anthracene	50.00	45.36	-9	30	YES
Chrysene	50.00	47.03	-6	30	YES
bis(2-Ethylhexyl)phthalate	50.00	46.91	-6	30	YES
Di-n-octylphthalate	50.00	48.70	-3	30	YES
Benzo(b)fluoranthene	50.00	45.77	-8	30	YES
Benzo(k)fluoranthene	50.00	47.76	-4	30	YES
Benzo(a)pyrene	50.00	47.21	-6	30	YES
Indeno(1,2,3-cd)pyrene	50.00	48.66	-3	30	YES
Dibenz(a,h)anthracene	50.00	47.51	-5	30	YES
Benzo(g,h,i)perylene	50.00	46.88	-6	30	YES

NC = Could not calculate

Comments: _____

DHR15 00893

7B

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP05525 Calibration Date: 01/23/12 Time: 16:27

Lab File ID: ja0311.d Init. Calib. Date(s): 01/22/12 01/22/12

Init. Calib. Times(s): 14:58 17:07

COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT
1,4-Dioxane	0.584	0.651	55.740	50.0	11
N-Nitrosodimethylamine	0.835	0.903	54.060	50.0	8
Pyridine	1.331	1.426	53.570	50.0	7
2-Picoline	1.427	1.403	49.160	50.0	-2
N-Nitrosodiethylamine	0.711	0.764	53.680	50.0	7
Aniline	1.733	1.757	50.690	50.0	1
Phenol	1.517	1.517	49.980	50.0	0
bis(2-Chloroethyl)ether	1.153	1.148	49.770	50.0	0
n-Decane	1.004	0.965	48.090	50.0	-4
2-Chlorophenol	1.488	1.463	49.130	50.0	-2
1,3-Dichlorobenzene	1.596	1.542	48.320	50.0	-3
1,4-Dichlorobenzene	1.496	1.481	49.480	50.0	-1
Benzyl alcohol	0.826	0.819	49.550	50.0	-1
1,2-Dichlorobenzene	1.430	1.404	49.090	50.0	-2
2-Methylphenol	1.142	1.210	52.960	50.0	6
2,2'-oxybis(1-Chloropropane)	1.506	1.505	49.970	50.0	0
bis(2-Chloroisopropyl)ether	1.506	1.505	49.970	50.0	0
N-Nitrosopyrrolidine	0.625	0.646	51.670	50.0	3
Acetophenone	1.462	1.439	49.240	50.0	-2
N-Nitroso-di-n-propylamine	0.628	0.633	50.390	50.0	1
4-Methylphenol	1.155	1.204	52.130	50.0	4
o-Toluidine	1.629	1.698	52.140	50.0	4
Hexachloroethane	0.596	0.564	47.290	50.0	-5
Nitrobenzene	0.294	0.289	49.190	50.0	-2
Isophorone	0.611	0.607	49.680	50.0	-1
2-Nitrophenol	0.298	0.296	49.550	50.0	-1
2,4-Dimethylphenol	0.355	0.337	47.490	50.0	-5
bis(2-Chloroethoxy)methane	0.385	0.372	48.370	50.0	-3
Benzoic acid	0.276	0.238	43.080	50.0	-14
2,4-Dichlorophenol	0.362	0.354	48.940	50.0	-2
1,2,4-Trichlorobenzene	0.370	0.359	48.490	50.0	-3
a-Terpineol	0.222	0.208	46.710	50.0	-7
Naphthalene	1.009	0.985	48.810	50.0	-2
4-Chloroaniline	0.479	0.507	52.960	50.0	6
2,6-Dichlorophenol	0.317	0.332	52.460	50.0	5
Hexachlorobutadiene	0.149	0.145	48.830	50.0	-2

HB 1/24/12

1/23/12

7C

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP05525 Calibration Date: 01/23/12 Time: 16:27

Lab File ID: ja0311.d Init. Calib. Date(s): 01/22/12 01/22/12

Init. Calib. Times(s): 14:58 17:07

COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT
N-Nitrosodi-n-butylamine	0.191	0.183	47.950	50.0	-4
4-Chloro-3-methylphenol	0.315	0.317	50.350	50.0	1
2-Methylnaphthalene	0.774	0.813	52.500	50.0	5
1-Methylnaphthalene	0.740	0.727	49.080	50.0	-2
Hexachlorocyclopentadiene	0.220	0.180	40.800	50.0	-18
1,2,4,5-Tetrachlorobenzene	0.509	0.500	49.130	50.0	-2
2,4,6-Trichlorophenol	0.345	0.342	49.430	50.0	-1
2,3-Dichloroaniline	0.658	0.648	49.230	50.0	-2
2,4,5-Trichlorophenol	0.390	0.385	49.380	50.0	-1
Biphenyl	1.399	1.310	46.800	50.0	-6
Diphenyl	1.399	1.310	46.800	50.0	-6
1,1'-Biphenyl	1.399	1.310	46.800	50.0	-6
2-Chloronaphthalene	1.147	0.974	42.450	50.0	-15
Diphenyl ether	0.725	0.720	49.690	50.0	-1
n-Tetradecane	0.543	0.563	51.820	50.0	4
2-Nitroaniline	0.514	0.512	49.750	50.0	0
Dimethylphthalate	1.320	1.290	48.860	50.0	-2
2,6-Dinitrotoluene	0.370	0.385	51.890	50.0	4
Acenaphthylene	1.695	1.677	49.480	50.0	-1
3-Nitroaniline	0.467	0.489	52.400	50.0	5
Acenaphthene	1.011	1.024	50.660	50.0	1
2,4-Dinitrophenol	0.213	0.180	42.420	50.0	-15
Pentachlorobenzene	0.415	0.412	49.620	50.0	-1
4-Nitrophenol	0.155	0.137	44.320	50.0	-11
Dibenzofuran	1.434	1.438	50.110	50.0	0
2,4-Dinitrotoluene	0.454	0.474	52.140	50.0	4
2,3,4,6-Tetrachlorophenol	0.283	0.298	52.590	50.0	5
n-Hexadecane	0.524	0.513	48.950	50.0	-2
Diethylphthalate	1.168	1.111	47.570	50.0	-5
Fluorene	1.160	1.113	47.990	50.0	-4
4-Chlorophenyl-phenylether	0.548	0.561	51.160	50.0	2
4-Nitroaniline	0.449	0.469	52.170	50.0	4
4,6-Dinitro-2-methylphenol	0.178	0.193	54.100	50.0	8
N-Nitrosodiphenylamine (1)	0.626	0.645	51.520	50.0	3
1,2-Diphenylhydrazine	0.597	0.594	49.740	50.0	-1
4-Bromophenyl-phenylether	0.201	0.202	50.210	50.0	0

DHB15 8895

(1) Cannot be Separated from Diphenylamine

7C cont

SEMIVOLATILE CONTINUING CALIBRATION CHECK

Lab Name: Lancaster Laboratories Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Instrument ID: HP05525 Calibration Date: 01/23/12 Time: 16:27

Lab File ID: ja0311.d Init. Calib. Date(s): 01/22/12 01/22/12

Init. Calib. Times(s): 14:58 17:07

COMPOUND	RRF	RRF50	ACTUAL CONC.	TRUE CONC.	% DRIFT
Hexachlorobenzene	0.223	0.245	54.810	50.0	10
n-Octadecane	0.355	0.359	50.640	50.0	1
Pentachlorophenol	0.123	0.107	43.320	50.0	-13
Phenanthrene	1.036	1.027	49.560	50.0	-1
Anthracene	1.063	1.100	51.760	50.0	4
Carbazole	1.135	1.163	51.240	50.0	2
Di-n-butylphthalate	1.413	1.461	51.690	50.0	3
1-Methylphenanthrene	0.761	0.767	50.410	50.0	1
n-Docosane	0.395	0.418	52.900	50.0	6
Fluoranthene	1.182	1.212	51.270	50.0	3
Benzidine	0.818	0.874	160.140	150.0	7
n-Eicosane	0.380	0.376	49.400	50.0	-1
Pyrene	1.326	1.331	50.170	50.0	0
Butylbenzylphthalate	0.810	0.831	51.270	50.0	3
3,3'-Dichlorobenzidine	0.464	0.485	52.220	50.0	4
Benzo(a)anthracene	1.228	1.228	50.000	50.0	0
Chrysene	1.110	1.142	51.450	50.0	3
bis(2-Ethylhexyl)phthalate	1.083	1.109	51.180	50.0	2
Di-n-octylphthalate	1.668	1.752	52.520	50.0	5
Benzo(b)fluoranthene	1.165	1.234	52.970	50.0	6
Benzo(k)fluoranthene	1.072	1.097	51.140	50.0	2
Benzo(a)pyrene	1.132	1.168	51.600	50.0	3
Indeno(1,2,3-cd)pyrene	1.240	1.309	52.780	50.0	6
Dibenz(a,h)anthracene	0.993	1.036	52.210	50.0	4
Benzo(g,h,i)perylene	1.119	1.124	50.240	50.0	0
2-Fluorophenol	1.438	1.543	53.620	50.0	7
Phenol-d5	1.621	1.656	51.070	50.0	2
Phenol-d6	1.621	1.656	51.070	50.0	2
Nitrobenzene-d5	0.307	0.298	48.570	50.0	-3
2-Fluorobiphenyl	1.119	1.077	48.110	50.0	-4
2,4,6-Tribromophenol	0.171	0.170	49.710	50.0	-1
Terphenyl-d14	0.887	0.925	52.120	50.0	4
			Average %Drift:		4

DHR15 0096

FORM VII SV-1

Continuing Calibration
Internal Standard Area and Retention Time Summary

Initial Calibration Standards:

/chem/HP05525.i/12jan22.b/ja0281.d **
/chem/HP05525.i/12jan22.b/ja0282.d
/chem/HP05525.i/12jan22.b/ja0283.d
/chem/HP05525.i/12jan22.b/ja0284.d
/chem/HP05525.i/12jan22.b/ja0285.d

** indicates the Mid Level Calibration Standard.

Mid Level Calibration Standard is used for comparison.

Current Continuing Calibration Standard:

/chem/HP05525.i/12jan23.b/ja0311.d

Area Summary

Internal Standard Name	File ID: ja0311.d	ICAL Area	Low Limit	High Limit	In Spec
1,4-Dichlorobenzene-d4	161547	169215	84608	338430	Yes
2-Fluoronaphthalene	545566	542573	271286	1085146	Yes
Acenaphthene-d10	334210	338816	169408	677632	Yes
Phenanthrene-d10	499547	520955	260478	1041910	Yes
Chrysene-d12	442463	450124	225062	900248	Yes
Perylene-d12	484140	470572	235286	941144	Yes

A "No" indicates the internal standard area is outside acceptable QC limits.

RT Summary

Internal Standard Name	File ID: ja0311.d	ICAL RT	In Spec
1,4-Dichlorobenzene-d4	6.793	6.796	Yes
2-Fluoronaphthalene	8.378	8.364	Yes
Acenaphthene-d10	10.658	10.642	Yes
Phenanthrene-d10	12.591	12.580	Yes
Chrysene-d12	16.417	16.399	Yes
Perylene-d12	19.138	19.124	Yes

A "No" indicates the retention time is greater than 30 seconds from the RT of the referenced standard.

Comments: MB/1886

1/23/12

Report generated on 01/23/2012 at 16:55

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: LANCASTER LABS Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID (Standard): ja0311.d Date Analyzed: 01/23/12

Instrument ID: HP05525 Time Analyzed: 16:27

		IS1(DCB)		IS2(2fn)		IS3(ANT)	
		AREA #	RT #	AREA #	RT #	AREA #	RT #
	24 HOUR STD	161547	6.793	545566	8.378	334210	10.658
	UPPER LIMIT	323094	7.293	1091132	8.878	668420	11.158
	LOWER LIMIT	80774	6.293	272783	7.878	167105	10.158
	LLI SAMPLE NO.						
01	SBLKWD021	160598	6.795	514681	8.372	321211	10.642
02	021WDLCS	133819	6.796	398402	8.376	260327	10.648
03	6527104	160905	6.800	511187	8.372	291101	10.639
04	6527105MS	112186	6.796	362186	8.372	235823	10.648
05	6527106MSD	132290	6.797	398634	8.377	254562	10.650
06	6526259	143622	6.798	450113	8.372	239461	10.650
07	6526263	147363	6.798	479699	8.365	285877	10.644
08	6526264	120733	6.793	422061	8.363	259563	10.642
09	6526806	139127	6.796	431439	8.369	267465	10.649
10	6526807	152419	6.790	471787	8.367	307975	10.645
11	6526973	135815	6.799	445984	8.365	277760	10.648
12	6527108	160040	6.795	532735	8.367	310599	10.648
13	6527109	140436	6.792	446774	8.367	292684	10.643
14	6527110	139826	6.792	452217	8.368	279368	10.640
15	6526370	128437	6.791	367196	8.369	207614	10.644
16	6527110DL	166236	6.786	506142	8.361	316218	10.640
17	6526258	144950	6.785	273318	8.368	258230	10.659

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (2fn) = 2-Fluoronaphthalene
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT (advisory) = +100% of internal standard area
AREA LOWER LIMIT (advisory) = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard are and RT values with an asterisk
* Values outside of QC limits.

DHR15 8898

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: LANCASTER LABS Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID (Standard): ja0311.d Date Analyzed: 01/23/12

Instrument ID: HP05525 Time Analyzed: 16:27

	IS4(PHN)		IS5(CRY)		IS6(PRY)	
	AREA #	RT #	AREA #	RT #	AREA #	RT #
24 HOUR STD	499547	12.591	442463	16.417	484140	19.138
UPPER LIMIT	999094	13.091	884926	16.917	968280	19.638
LOWER LIMIT	249774	12.091	221232	15.917	242070	18.638
LLI SAMPLE NO.						
01 SBLKWD021	485380	12.577	430943	16.393	403335	19.115
02 021WDLCS	371570	12.591	333858	16.403	348363	19.126
03 6527104	453131	12.576	427416	16.391	402727	19.117
04 6527105MS	335570	12.588	308267	16.407	324858	19.121
05 6527106MSD	375501	12.584	330293	16.409	366090	19.128
06 6526259	432970	12.584	424080	16.394	449471	19.114
07 6526263	460180	12.578	435083	16.387	429006	19.118
08 6526264	407590	12.574	381258	16.385	379837	19.109
09 6526806	407232	12.582	353635	16.397	401598	19.125
10 6526807	447585	12.578	401038	16.384	410316	19.111
11 6526973	410176	12.572	413157	16.385	382718	19.118
12 6527108	513632	12.577	469333	16.392	461627	19.113
13 6527109	435871	12.579	395475	16.390	389390	19.113
14 6527110	442643	12.581	413015	16.381	397497	19.113
15 6526370	364747	12.570	355042	16.388	333478	19.108
16 6527110DL	498336	12.576	465842	16.385	451017	19.104
17 6526258	421645	12.583	382863	16.381	402832	19.109

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT (advisory) = +100% of internal standard area
AREA LOWER LIMIT (advisory) = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard are and RT values with an asterisk
* Values outside of QC limits.

DHR15 8899

8B

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: LANCASTER LABS Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID (Standard): ja0341.d Date Analyzed: 01/26/12

Instrument ID: HP05525 Time Analyzed: 18:33

	IS1(DCB) AREA #	RT #	IS2(2fn) AREA #	RT #	IS3(ANT) AREA #	RT #
24 HOUR STD	140397	6.783	435929	8.364	282022	10.637
UPPER LIMIT	280794	7.283	871858	8.864	564044	11.137
LOWER LIMIT	70199	6.283	217965	7.864	141011	10.137
LLI SAMPLE NO.						
01 SBLKWE024	150747	6.785	457672	8.353	288600	10.628
02 024WELCS	116139	6.785	356968	8.370	230027	10.639
03 024WELCSD	114149	6.785	362088	8.365	235714	10.641
04 SBLKWE025	142760	6.784	482252	8.359	273502	10.634
05 025WELCS	114946	6.789	360596	8.367	233022	10.646
06 6524514RE	126957	6.790	413590	8.366	241358	10.636
07 6527104RE	153763	6.794	480483	8.359	297449	10.634
08 6527105RE	119739	6.793	366106	8.373	232448	10.642
09 6527106MSD	123872	6.793	383764	8.376	250471	10.645
10 6526806RE	116463	6.796	379587	8.375	233070	10.645
11 6526807RE	147806	6.794	458659	8.371	287100	10.645
12 6527103	144732	6.793	481248	8.371	280757	10.639
13 6527108RE	149802	6.795	471381	8.373	281683	10.643
14 6527109RE	154156	6.799	464707	8.371	281314	10.646
15 6527110RE	143658	6.793	457143	8.366	293573	10.647
16 6527111	146542	6.800	456607	8.366	283476	10.640
17 6527112	138930	6.790	444275	8.367	272760	10.648

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (2fn) = 2-Fluoronaphthalene
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT (advisory) = +100% of internal standard area
AREA LOWER LIMIT (advisory) = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard are and RT values with an asterisk
* Values outside of QC limits.

DHR15 6168

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: LANCASTER LABS Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID (Standard): ja0341.d Date Analyzed: 01/26/12

Instrument ID: HP05525 Time Analyzed: 18:33

	IS4(PHN)		IS5(CRY)		IS6(PRY)	
	AREA #	RT #	AREA #	RT #	AREA #	RT #
24 HOUR STD	448904	12.577	423482	16.390	451443	19.100
UPPER LIMIT	897808	13.077	846964	16.890	902886	19.600
LOWER LIMIT	224452	12.077	211741	15.890	225722	18.600
LLI SAMPLE NO.						
01 SBLKWE024	449240	12.564	420467	16.373	412628	19.097
02 024WELCS	334671	12.578	294171	16.394	302593	19.114
03 024WELCSD	334886	12.573	292379	16.392	303513	19.114
04 SBLKWE025	423168	12.567	397131	16.378	374752	19.101
05 025WELCS	336802	12.576	301138	16.399	325628	19.111
06 6524514RE	358050	12.566	373164	16.377	360835	19.099
07 6527104RE	454586	12.572	416071	16.383	383572	19.101
08 6527105RE	352042	12.585	299243	16.399	338444	19.118
09 6527106MSD	368975	12.579	316419	16.400	334761	19.120
10 6526806RE	356757	12.584	316813	16.406	343114	19.128
11 6526807RE	432216	12.573	403253	16.390	372763	19.109
12 6527103	442517	12.577	421288	16.390	380399	19.113
13 6527108RE	446413	12.578	425850	16.387	382256	19.110
14 6527109RE	441068	12.578	406473	16.389	393370	19.110
15 6527110RE	452211	12.572	422587	16.379	371800	19.110
16 6527111	430542	12.575	387884	16.381	368744	19.119
17 6527112	430897	12.578	386621	16.387	382386	19.109

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT (advisory) = +100% of internal standard area
AREA LOWER LIMIT (advisory) = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard are and RT values with an asterisk
* Values outside of QC limits.

DHR15 8181

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: LANCASTER LABS Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID (Standard): ja0341.d Date Analyzed: 01/26/12

Instrument ID: HP05525 Time Analyzed: 18:33

		IS1(DCB)			IS2(2fn)			IS3(ANT)		
		AREA	#	RT	#	AREA	#	RT	#	AREA	#	RT	#
	24 HOUR STD	140397		6.783		435929		8.364		282022		10.637	
	UPPER LIMIT	280794		7.283		871858		8.864		564044		11.137	
	LOWER LIMIT	70199		6.283		217965		7.864		141011		10.137	
	LLI SAMPLE NO.												
18	6527113	144428		6.797		478926		8.368		280545		10.642	
19	6527114	146498		6.798		464535		8.372		275246		10.639	
20	6527115	147218		6.799		466452		8.364		281408		10.646	
21	6527116	143807		6.796		477995		8.368		281779		10.642	
22	6527117	143474		6.798		455701		8.368		274900		10.645	
23	6528002	118562		6.799		382882		8.369		253071		10.651	

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (2fn) = 2-Fluoronaphthalene
IS3 (ANT) = Acenaphthene-d10

AREA UPPER LIMIT (advisory) = +100% of internal standard area
AREA LOWER LIMIT (advisory) = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard are and RT values with an asterisk
* Values outside of QC limits.

DHR15 8182

8C

SEMIVOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: LANCASTER LABS Contract:_____

Lab Code: LANCAS Case No.:_____ SAS No.:_____ SDG No.:_____

Lab File ID (Standard): ja0341.d Date Analyzed: 01/26/12

Instrument ID: HP05525 Time Analyzed: 18:33

		IS4(PHN)			IS5(CRY)			IS6(PRY)		
		AREA	#	RT	#	AREA	#	RT	#	AREA	#	RT	#
	24 HOUR STD	448904		12.577		423482		16.390		451443		19.100	
	UPPER LIMIT	897808		13.077		846964		16.890		902886		19.600	
	LOWER LIMIT	224452		12.077		211741		15.890		225722		18.600	
	LLI SAMPLE NO.												
18	6527113	446472		12.576		413169		16.386		371518		19.114	
19	6527114	424160		12.575		383549		16.388		367688		19.111	
20	6527115	431847		12.574		396279		16.385		369592		19.106	
21	6527116	441169		12.578		409981		16.390		382929		19.110	
22	6527117	447594		12.571		410580		16.389		374601		19.115	
23	6528002	419246		12.580		362743		16.388		334035		19.111	

IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

AREA UPPER LIMIT (advisory) = +100% of internal standard area
AREA LOWER LIMIT (advisory) = -50% of internal standard area
RT UPPER LIMIT = +0.50 minutes of internal standard RT
RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column used to flag internal standard are and RT values with an asterisk
* Values outside of QC limits.

DHR15 8183

Extraction/Distillation/Digestion Logs

Organic Extraction Batchlog Assigned to: 2807 Nicholas Shroyer Reviewed by: HB/1996 1/23/12 Start Date: 1-22-12 Start time: 22:30

12021WAD625

Tech 1: NS 2857 Tech 2:

Dept: 26 Prep Analysis: 08108 625 Water Extraction Method 625

QC	Sample Code	Amt (mL)	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (mL)	pH 2	pH 11	BC	Comments
6527105MS	PW-3R	1006	SS1134826A	1.0	MS1131126C MS1200526A MS1202026A	1.0 1.0 1.0	1.0	✓	✓	43A	clear
6527106MSD	PW-3R	1051	SS1134826A	1.0	MS1131126C MS1200526A MS1202026A	1.0 1.0 1.0	1.0	✓	✓	43A	↓
BLANKA	SBLKWD021	1000	SS1134826A	1.0	—	—	1.0	✓	✓	—	Tap H_2O
LCSA	LCSWD021	1000	SS1134826A	1.0	MS1131126C MS1200526A MS1202026A	1.0 1.0 1.0	1.0	✓	✓	—	↓

Solvent Used	Lot No.
10N NaOH	1010018
Methylene Chloride	116980
Sodium Sulfate	12020A
Sulfuric Acid	113788

Spike Solutions: Witness:

MS1131126C	625 ADD-IN MIX
MS1202026A	APPIX MIX #1
MS1200526A	LCS SPIKE MIX
SS1134826A	625 SURROGATE STANDARD

	Sample #	Sample Code	Amt (mL)	SS/IS Sol.	Amt (mL)	FV (mL)	pH 2	pH 11	BC	Comments	Analyses	Due Date	Prio
1	6526263	ASDSC	1004	SS1134826A	1.0	1.0	✓	✓	43A	clear	10334	01/31/2012	N
2	6526264	AS-IN	1000	SS1134826A	1.0	1.0	✓	✓	43A	↓ beige	10334	01/31/2012	N
3	6526370	MANMA	1053	SS1134826A	1.0	1.0	✓	✓	43A	cloudy, brown cent x1	10334	01/31/2012	P
4	6526806	IDWW2	1052	SS1134826A	1.0	1.0	✓	✓	43A	clear	10334	01/31/2012	N
5	6526807	IDWW3	1053	SS1134826A	1.0	1.0	✓	✓	43A	cloudy brown	10334	01/31/2012	N
6	6526973	00203	904	SS1134826A	1.0	1.0	✓	✓	43B	↓ green	10334	01/30/2012	S
7	6527103	CITY5	1052	SS1134826A	1.0	1.0	✓	✓	43A	clear	10334	01/31/2012	N
8	6527104BKG	PW-3R	1052	SS1134826A	1.0	1.0	✓	✓	43A		10334	01/31/2012	N
9	6527108	PW3RD	1051	SS1134826A	1.0	1.0	✓	✓	43A		10334	01/31/2012	N
10	6527109	PW-06	1003	SS1134826A	1.0	1.0	✓	✓	43A		10334	01/31/2012	N
11	6527110	PW-46	1056	SS1134826A	1.0	1.0	✓	✓	43A	↓	10334	01/31/2012	N
12	6527111	PW-07	1050	SS1134826A	1.0	1.0	✓	✓	43A	cloudy gray	10334	01/31/2012	N
13	6527112	PW-34	1053	SS1134826A	1.0	1.0	✓	✓	43A	brown	10334	01/31/2012	N
14	6527113	PW-35	1052	SS1134826A	1.0	1.0	✓	✓	43A	beige cent x1	10334	01/31/2012	N
15	6527114	PW-37	1051	SS1134826A	1.0	1.0	✓	✓	43A	gray	10334	01/31/2012	N
16	6527115	PW-43	1031	SS1134826A	1.0	1.0	✓	✓	43A	↓ brown cent x1	10334	01/31/2012	N

Rack ID		Work Station	H_2O Bench 2
Internal Standard	LB96433 LB80019	Balance #	15661

S-bath ID 1	87° C	S-bath ID 9	87° C	N-Evap	C	M-vap	C	12021WAD625

Documented temps are NIST corrected.

DF = Dilution Factor FV = Final Volume

$MeCl_2$ Lot # 116980

	Sample #	Sample Code	Amt (mg)	SS/IS Sol.	Amt (mL)	FV (mL)	pH 2	pH 11	BC	Comments	Analyses	Due Date	Prio
17	6527116	PW-47	1054	SS1134826A	1.0	1.0	✓	✓	43A	clear	10334	01/31/2012	N
18	6527117	PW-E1	963	SS1134826A	1.0	1.0	✓	✓	43A	↓	10334	01/31/2012	N
19	6528002	SMPS1	1011	SS1134826A	1.0	1.0	✓	✓	45A	cloudy, brown crust x1	10334	02/01/2012	N

Rack ID:		Work Station	
Internal Standard		Balance #	

DF = Dilution Factor FV = Final Volume

S-bath ID	C	S-bath ID	C	N-Evap	C	M-vap	C	12021WAD625

Documented temps are NIST corrected.

Organic Extraction Batchlog Assigned to: 1785 Sherry Morrow Reviewed by: HB1996 1/26/12 Start Date: 1/26/12 Start time: 230 Am

12025WAE625

Tech 1: SLM1785 Tech 2:

Dept: 26 Prep Analysis: 08108 625 Water Extraction Method 625

QC	Sample Code	Amt (mL)	SS/IS Sol.	Amt (mL)	MS Sol.	Amt (mL)	FV (mL)	pH 2	pH 11	BC	Comments
6527105MS	PW-3R	1035	SS1134826A	1.0	MS1131126C MS1200526A MS1202026A	1.0 1.0 1.0	1	✓	✓	43B	CLEAR
6527106MSD	PW-3R	1036	SS1134826A	1.0	MS1131126C MS1200526A MS1202026A	1.0 1.0 1.0	1	✓	✓	43B	CLEAR
BLANKA	SBLKWE025	1000	SS1134826A	1.0			1	✓	✓	N/A	TAP H2O
LCSA	LCSWE025	1000	SS1134826A	1.0	MS1131126C MS1200526A MS1202026A	1.0 1.0 1.0	1	✓	✓	N/A	↓

Solvent Used	Lot No.
10N NaOH	1110441
Methylene Chloride	116807
Sodium Sulfate	12025A
Sulfuric Acid	113788

Spike Solutions: Witness: N/A

MS1131126C	625 ADD-IN MIX
MS1202026A	APPIX MIX #1
MS1200526A	LCS SPIKE MIX
SS1134826A	625 SURROGATE STANDARD

	Sample #		Sample Code	Amt (mL)	SS/IS Sol.	Amt (mL)	FV (mL)	pH 2	pH 11	BC	Comments	Analyses	Due Date	Prio
End 1	6526370	R	MANMA	1057	SS1134826A	1.0	1	✓	✓	43B	CLOUDY LIGHT YELLOW	10334	01/31/2012	P
2	6526806	R	IDWW2	1055	SS1134826A	1.0	1	✓	✓	43B	CLEAR	10334	01/31/2012	N
3	6526807	R	IDWW3	1054	SS1134826A	1.0	1	✓	✓	43B	LIGHT ORANGE	10334	01/31/2012	N
4	6527103	R	CITY5	1045	SS1134826A	1.0	1	✓	✓	43B	CLEAR	10334	01/31/2012	N
5	6527104BKG	R	PW-3R	1046	SS1134826A	1.0	1	✓	✓	43B	CLEAR	10334	01/31/2012	N
6	6527108	R	PW3RD	1044	SS1134826A	1.0	1	✓	✓	43B	CLEAR	10334	01/31/2012	N
7	6527109	R	PW-06	1039	SS1134826A	1.0	1	✓	✓	43B	CLEAR	10334	01/31/2012	N
8	6527110	R	PW-46	1049	SS1134826A	1.0	1	✓	✓	43B	PALE YELLOW	10334	01/31/2012	N
9	6527111	R	PW-07	1054	SS1134826A	1.0	1	✓	✓	43B	LIGHT YELLOW	10334	01/31/2012	N
10	6527112	R	PW-34	1051	SS1134826A	1.0	1	✓	✓	43B	LIGHT ORANGE	10334	01/31/2012	N
11	6527113	R	PW-35	1059	SS1134826A	1.0	1	✓	✓	43B	LIGHT YELLOW	10334	01/31/2012	N
12	6527114	R	PW-37	1056	SS1134826A	1.0	1	✓	✓	43B	CLOUDY PALE YELLOW	10334	01/31/2012	N
13	6527115	R	PW-43	1051	SS1134826A	1.0	1	✓	✓	43B	CLOUDY ORANGE	10334	01/31/2012	N
14	6527116	R	PW-47	1056	SS1134826A	1.0	1	✓	✓	43B	CLEAR	10334	01/31/2012	N
15	6527117	R	PW-E1	1050	SS1134826A	1.0	1	✓	✓	43B	CLEAR	10334	01/31/2012	N
16	6528002	R	SMPS1	1051	SS1134826A	1.0	1	✓	✓	45B	CLOUDY LIGHT ORANGE	10334	02/01/2012	N

Rack ID		Work Station	H2O 6
Internal Standard	LB76433 LB50019	Balance #	15661

S-bath ID	11 88 C	S-bath ID	C	N-Evap	C	M-vap	C	12025WAE625

Documented temps are NIST corrected.

DF = Dilution Factor FV = Final Volume

Sample #	Sample Code	Amt ( )	SS/IS Sol.	Amt (mL)	FV (mL)	pH 2	pH 11	BC	Comments	Analyses	Due Date	Prio

Rack ID:		Work Station	
Internal Standard		Balance #	

S-bath ID	C	S-bath ID	C	N-Evap	C	M-vap	C	12025WAE625

Documented temps are NIST corrected.

DF = Dilution Factor FV = Final Volume

Lancaster Laboratories
Semi-Volatiles

Runlog for Hewlett Packard GC/MS System HP05525 **HP #10**

*** Shift #1 Analyst:_____ *** Shift #2 Analyst: hb

Comment Code:

R = Reinjection necessary	X =	Sample sent to be reextracted
S = Surrogate problem	I =	Internal Standard problem
NU = Not used	F =	Further dilution required
MR = Meets requirements	IUO =	Internal use only
Cz = Confirms z, (z = I or X)	T =	Injected outside valid tune period

Other problems or comments are as follows:

Data Directory Path is - D:\DATA\12JAN22\

ALS Bti #	Laboratory File ID	Client ID	Lab Sample ID	Date injected	Time injected	Case and SDG Number or Extraction Batch Number	Dilution Factor	Comments
1	JA0280.D	DFTPP	50ppmDFTPP3471	22 Jan 2012	14:13			nu
1	JA0280Z.D	DFTPP	50ppmDFTPP3471	22 Jan 2012	14:35			mr
2	JA0281.D	STD050	6250102	22 Jan 2012	14:58			mr
3	JA0282.D	STD005	6250102	22 Jan 2012	15:36			mr
4	JA0283.D	STD120	6250102	22 Jan 2012	16:06			mr
5	JA0284.D	STD080	6250102	22 Jan 2012	16:37			mr
6	JA0285.D	STD030	6250102	22 Jan 2012	17:07			mr
7	JA0286.D	STD050	6251CV0182	22 Jan 2012	17:38			mr

Lancaster Laboratories
Semi-Volatiles

Runlog for Hewlett Packard GC/MS System HP05525 **HP #10**

*** Shift #1 Analyst: BC *** Shift #2 Analyst: HB *

Comment Code:
R = Reinjection necessary
X = Sample sent to be reextracted
S = Surrogate problem
I = Internal Standard problem
NU = Not used
F = Further dilution required
MR = Meets requirements
IUO = Internal use only
Cz = Confirms z, (z = I or X)
T = Injected outside valid tune period

Other problems or comments are as follows:

*
*
*
*

Data Directory Path is - D:\DATA\12JAN23\

ALS Btl #	Laboratory File ID	Client ID	Lab Sample ID	Date injected	Time injected	Case and SDG Number or Extraction Batch Number	Dilution Factor	Comments
1	JA0310.D	DFTPP	50ppmDFTPP3471	23 Jan 2012	16:05			mr
2	JA0311.D	STD050	6250102	23 Jan 2012	16:27			mr
3	JA0312.D	SBLKWD021J	SBLKWD021	23 Jan 2012	16:58	12021WAD		mr
4	JA0313.D	021WDLCSJ	021WDLCS	23 Jan 2012	17:28	12021WAD		mr
5	JA0314.D	XXXXX	6527104	23 Jan 2012	17:59	12021WAD		mr
6	JA0315.D	XXXXXMS	6527105	23 Jan 2012	18:29	12021WAD		mr
7	JA0316.D	XXXXXMSD	6527106	23 Jan 2012	19:00	12021WAD		mr
8	JA0317.D	XXXXX	6526258	23 Jan 2012	19:31	12019WAC	10	nu
9	JA0318.D	XXXXX	6526259	23 Jan 2012	20:01	12019WAC	10	mr
10	JA0319.D	XXXXX	6526263	23 Jan 2012	20:32	12021WAD		mr
11	JA0320.D	XXXXX	6526264	23 Jan 2012	21:03	12021WAD		mr
12	JA0321.D	XXXXX	6526806	23 Jan 2012	21:33	12021WAD		mr
13	JA0322.D	XXXXX	6526807	23 Jan 2012	22:04	12021WAD		mr
14	JA0323.D	XXXXX	6526973	23 Jan 2012	22:35	12021WAD		mr
15	JA0324.D	XXXXX	6527103	23 Jan 2012	23:05	12021WAD		mr
16	JA0325.D	XXXXX	6527108	23 Jan 2012	23:36	12021WAD		mr
17	JA0326.D	XXXXX	6527109	24 Jan 2012	00:07	12021WAD		mr
18	JA0327.D	XXXXX	6527110	24 Jan 2012	00:37	12021WAD		mr
19	JA0328.D	XXXXX	6527111	24 Jan 2012	01:08	12021WAD		mr
20	JA0329.D	XXXXX	6527112	24 Jan 2012	01:38	12021WAD		mr
21	JA0330.D	XXXXX	6527113	24 Jan 2012	02:09	12021WAD		mr
22	JA0331.D	XXXXX	6527114	24 Jan 2012	02:39	12021WAD		mr
23	JA0332.D	XXXXX	6527115	24 Jan 2012	03:10	12021WAD		mr
24	JA0333.D	XXXXX	6527116	24 Jan 2012	03:40	12021WAD		mr
25	JA0334.D	XXXXX	6527117	24 Jan 2012	04:11	12021WAD		mr
26	JA0335.D	XXXXX	6528002	24 Jan 2012	04:41	12021WAD		mr
27	JA0336.D	XXXXX	6526370	24 Jan 2012	05:12	12021WAD		mr
28	JA0337.D	XXXXX	6526258	24 Jan 2012	05:43	12019WAC	20	nu
29	JA0338.D	XXXXXDL	6527110DL	24 Jan 2012	06:13	12021WAD	10	mr
28	JA0339.D	XXXXX	6526258	24 Jan 2012	06:44	12019WAC	20	mr

DHR15 8118

Lancaster Laboratories

Semi-Volatiles

Runlog for Hewlett Packard GC/MS System HP05525 **HP #10**

*** Shift #1 Analyst: bkg *** Shift #2 Analyst: hb

Comment Code:

R = Reinjection necessary		X =	Sample sent to be reextracted
S = Surrogate problem		I =	Internal Standard problem
NU = Not used		F =	Further dilution required
MR = Meets requirements		IUO =	Internal use only
Cz = Confirms z, (z = I or X)		T =	Injected outside valid tune period

Other problems or comments are as follows:

Data Directory Path is - D:\DATA\12JAN26A\

ALS Btl #	Laboratory File ID	Client ID	Lab Sample ID	Date injected	Time injected	Case and SDG Number or Extraction Batch Number	Dilution Factor	Comments
1	JA0340.D	DFTPP	50ppmDFTPP3471	26 Jan 2012	17:49			nu
1	JA0340Z.D	DFTPP	50ppmDFTPP3471	26 Jan 2012	18:10			mr
2	JA0341.D	STD050	6250102	26 Jan 2012	18:33			mr
31	JA0342.D	STD005	6250102	26 Jan 2012	19:11			mr
32	JA0343.D	STD120	6250102	26 Jan 2012	19:41			mr
33	JA0344.D	STD080	6250102	26 Jan 2012	20:12			mr
34	JA0345.D	STD030	6250102	26 Jan 2012	20:42			mr
35	JA0346.D	STD050	625ICV0182	26 Jan 2012	21:13			mr
3	JA0347.D	SBLKWE024J	SBLKWE024	26 Jan 2012	21:44	12024WAE		mr
27	JA0348.D	HBQUAD1	625QUAD	26 Jan 2012	22:15	12011WAC		nu
28	JA0349.D	HBQUAD2	625QUAD	26 Jan 2012	22:45	12011WAC		nu
29	JA0350.D	HBQUAD3	625QUAD	26 Jan 2012	23:15	12011WAC		nu
30	JA0351.D	HBQUAD4	625QUAD	26 Jan 2012	23:46	12011WAC		nu
4	JA0352.D	024WELCSJ	024WELCS	27 Jan 2012	00:16	12024WAE		mr
5	JA0353.D	024WELCSDJ	024WELCSD	27 Jan 2012	00:47	12024WAE		mr
6	JA0354.D	SBLKWE025J	SBLKWE025	27 Jan 2012	01:17	12025WAE		mr
7	JA0355.D	025WELCSJ	025WELCS	27 Jan 2012	01:48	12025WAE		mr
8	JA0356.D	XXXXXRE	6524514RE	27 Jan 2012	02:18	12024WAE		sc
9	JA0357.D	XXXXXRE	6527104RE	27 Jan 2012	02:49	12025WAE		mr
10	JA0358.D	XXXXXREMS	6527105	27 Jan 2012	03:20	12025WAE		mr
11	JA0359.D	XXXXXREMSD	6527106	27 Jan 2012	03:51	12025WAE		mr
12	JA0360.D	XXXXXRE	6526806RE	27 Jan 2012	04:57	12025WAE		mr
13	JA0361.D	XXXXXRE	6526807RE	27 Jan 2012	05:27	12025WAE		s,ck
14	JA0362.D	XXXXXRE	6527103RE	27 Jan 2012	05:58	12025WAE		mr
15	JA0363.D	XXXXXRE	6527108RE	27 Jan 2012	06:28	12025WAE		mr
16	JA0364.D	XXXXXRE	6527109RE	27 Jan 2012	06:59	12025WAE		mr
17	JA0365.D	XXXXXRE	6527110RE	27 Jan 2012	07:30	12025WAE		mr
18	JA0366.D	XXXXX	6527111	27 Jan 2012	08:00	12025WAE		mr
19	JA0367.D	XXXXX	6527112	27 Jan 2012	08:31	12025WAE		mr
20	JA0368.D	XXXXX	6527113	27 Jan 2012	09:01	12025WAE		mr
21	JA0369.D	XXXXX	6527114	27 Jan 2012	09:32	12025WAE		mr
22	JA0370.D	XXXXX	6527115	27 Jan 2012	10:03	12025WAE		mr
23	JA0371.D	XXXXX	6527116	27 Jan 2012	10:33	12025WAE		mr
24	JA0372.D	XXXXX	6527117	27 Jan 2012	11:03	12025WAE		mr
25	JA0373.D	XXXXX	6528002	27 Jan 2012	11:34	12025WAE		mr
26	JA0374.D	XXXXXRE	6526370RE	27 Jan 2012	12:05	12025WAE		nu,i

DHR15 0111

Metals in Liquid Data

Case Narrative
Conformance/Non-Conformance

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CASE NARRATIVE FOR INORGANICS

Laboratory Name: Lancaster Laboratories

SDG Number: DHR15

Date Received: 01/19/2012

Dilutions:

Refer to the analysis run logs for samples requiring dilutions.

The reporting limit for mercury on sample 6526807 was raised due to interference from the sample matrix.

Quality Assurance/Quality Control:

Site specific matrix QC samples for the ICP metals were not submitted for this SDG. The batch matrix QC was performed on samples from another project. Therefore the matrix effects would not be relevant and matrix QC is not provided in the data package. Laboratory spike data (LCS) are provided.

Method defined actions are taken for any failed matrix QC.

See QC Reference List for Associated Batch QC Samples.

Explanatory Notes:

The instrument detection limits (IDLs) are used for determining the U flags on the initial and continuing calibration blanks. The highest IDL is selected when multiple instruments are used for an analysis. The method detection limits (MDLs) are used for determining all other U flags.

Narrative Reviewed and Approved 02-01-12 by (Date)

Betty L. Umble
Specialist

Sample Data

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: DHR15
Matrix: WATER Level (low/med): LOW

Lab Sample ID: 6526806 % Solids: 0.0
Concentration Units: NG/L Date Received: 01/19/2012

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	15.9			AF

Comments:

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer MS = ICP Mass Spectrometry CV = Cold Vapor AF = Cold Vapor Atomic Fluorescence NR = Not Required	U = Below MDL, B = Below LOQ

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: DHR15
Matrix: WATER Level (low/med): LOW

Lab Sample ID: 6526806 % Solids: 0.0
Concentration Units: UG/L Date Received: 01/19/2012

CAS No.	Analyte	Concentration	C	Q	M
7440-47-3	Chromium	25.7			P
7440-50-8	Copper	82.9			P
7439-92-1	Lead	3.0	B		P
7440-02-0	Nickel	1.2	B		P
7440-66-6	Zinc	9.5	B		P

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence
NR = Not Required

CONCENTRATION QUALIFIERS:
U = Below MDL,
B = Below LOQ

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: DHR15
Matrix: WATER Level (low/med): LOW

Lab Sample ID: 6526807
Concentration Units: NG/L

% Solids: 0.0
Date Received: 01/19/2012

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	1.6	U		AF

Comments:

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer MS = ICP Mass Spectrometry CV = Cold Vapor AF = Cold Vapor Atomic Fluorescence NR = Not Required	U = Below MDL, B = Below LOQ

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QUALITY ASSURANCE SUMMARY
FORM 1
INORGANIC ANALYSIS DATA SHEET
SDG No.: DHR15
Matrix: WATER Level (low/med): LOW

Lab Sample ID: 6526807 % Solids: 0.0
Concentration Units: UG/L Date Received: 01/19/2012

CAS No.	Analyte	Concentration	C	Q	M
7440-47-3	Chromium	1.1	U		P
7440-50-8	Copper	1.4	B		P
7439-92-1	Lead	2.2	U		P
7440-02-0	Nickel	5.6	B		P
7440-66-6	Zinc	60.5			P

Comments:

METHODS:	CONCENTRATION QUALIFIERS:
P = ICP Atomic Emission Spectrometer	U = Below MDL,
MS = ICP Mass Spectrometry	B = Below LOQ
CV = Cold Vapor	
AF = Cold Vapor Atomic Fluorescence	
NR = Not Required	

Quality Control and Calibration Summary Forms

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QUALITY CONTROL REFERENCE LIST

SDG No.: DHR15
Matrix: WATER

Analyte	Batch ID	Lab Sample ID
Chromium	P02016B	6526806
Copper		6526807
Lead		P02016BB
Nickel		P02016BQ
Zinc		

LEGEND:

BKG = Background	B = Blank
DUP = Duplicate	Q = Laboratory Control Sample
MS = Matrix Spike	Y = Laboratory Control Sample Duplicate
MSD = Matrix Spike Duplicate	

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QUALITY CONTROL REFERENCE LIST

SDG No.: DHR15
Matrix: WATER

Analyte	Batch ID	Lab Sample ID
Mercury	P02573B	6526806BKG
		6526806MS
		6526806MSD
		6526807
		P02573BB
		P02573BQ

LEGEND:

BKG = Background	B = Blank
DUP = Duplicate	Q = Laboratory Control Sample
MS = Matrix Spike	Y = Laboratory Control Sample Duplicate
MSD = Matrix Spike Duplicate	

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: DHR15

Method: P
Run Name: 1202304T70
Calibration Date(s): 01/23/2012
Concentration Units: UG/L

Analyte	Mass	Initial Calibration			Continuing Calibration					
		True	Found	%R(1)	True	Found	%R(2)	True	Found	%R(2)
Chromium		600.0	585.47	97.6	500.0	482.00	96.4	500.0	482.52	96.5
Copper		600.0	593.55	98.9	500.0	491.74	98.3	500.0	491.02	98.2
Lead		600.0	588.62	98.1	500.0	477.11	95.4	500.0	477.37	95.5
Nickel		600.0	599.41	99.9	500.0	495.33	99.1	500.0	494.51	98.9
Zinc		600.0	577.54	96.3	500.0	477.71	95.5	500.0	479.26	95.9

(1) Control Limits: 95 - 105
(2) Control Limits: 90 - 110

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: DHR15

Method: P
Run Name: 1202304T70
Calibration Date(s): 01/23/2012
Concentration Units: UG/L

Analyte	Mass	Initial Calibration True	Initial Calibration Found	Initial Calibration %R(1)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(2)	Continuing Calibration True	Continuing Calibration Found	Continuing Calibration %R(2)
Chromium					500.0	487.35	97.5			
Copper					500.0	497.85	99.6			
Lead					500.0	487.34	97.5			
Nickel					500.0	499.06	99.8			
Zinc					500.0	487.83	97.6			

(1) Control Limits: 95 - 105
(2) Control Limits: 90 - 110

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2A
INITIAL AND CONTINUING CALIBRATION VERIFICATION
SDG No.: DHR15

Method: AF
Run Name: 1202603L01
Calibration Date(s): 01/26/2012
Concentration Units: NG/L

Analyte	Mass	Initial Calibration True	Found	%R(1)	Continuing Calibration True	Found	%R(2)	True	Found	%R(2)
Mercury		5.0	4.45	89.0	5.0	4.73	94.6			

(1) Control Limits: 77 - 123
(2) Control Limits: 77 - 123

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2B
LOW LEVEL CHECK STANDARD
SDG No.: DHR15

Method: P
Run Name: 1202304T70
Calibration Date(s): 01/23/2012
Concentration Units: UG/L

Analyte	Mass	Initial True	Initial Found	Initial %R	Final Found	Final %R
Chromium		15.0	14.39	95.9	14.50	96.7
Copper		10.0	9.12	91.2	9.38	93.8
Lead		15.0	16.63	110.9	17.02	113.5
Nickel		10.0	10.92	109.2	10.42	104.2
Zinc		20.0	19.24	96.2	19.50	97.5

Control limits: 50% - 150%

For 6010B - Control limits apply to values up to 10 times the true value of the low level check standard. If LLC is out of specification, high, results < RL are acceptable.
For 6010C - If Low Level Check (LLC) is out of specification, results > CCV are acceptable. If LLC is out of specification, high, results < RL are acceptable.

METHODS: DHR15 6126
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 2B
LOW LEVEL CHECK STANDARD
SDG No.: DHR15

Method: AF
Run Name: 1202603L01
Calibration Date(s): 01/26/2012
Concentration Units: NG/L

Analyte	Mass	Initial True	Initial Found	Initial %R	Final Found	Final %R
Mercury		0.5	0.63	126.0		

Control limits: 0% - 200%

For 6010B - Control limits apply to values up to 10 times the true value of the low level check standard. If LLC is out of specification, high, results < RL are acceptable.
For 6010C - If Low Level Check (LLC) is out of specification, results > CCV are acceptable. If LLC is out of specification, high, results < RL are acceptable.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 3
BLANKS
SDG No.: DHR15

Method: P
Run Name: 1202304T70
Calibration Date(s): 01/23/2012
Preparation Blank Matrix: WATER

Analyte	Mass	Initial Calibration Blank (ug/L)	C	Continuing Calibration Blank (ug/L) 1	C	2	C	3	C	Mass	Preparation Blank (UG/L)	C	Lab Sample ID
Chromium		1.2	U	1.2	U	1.2	U	1.2	U		1.100	U	P02016BB
Copper		1.7	U	1.7	U	1.7	U	1.7	U		0.940	U	P02016BB
Lead		2.3	U	2.3	U	2.3	U	2.3	U		2.200	U	P02016BB
Nickel		1.3	U	1.3	U	1.3	U	1.3	U		0.950	U	P02016BB
Zinc		2.0	U	2.0	U	2.0	U	2.0	U		3.200	U	P02016BB

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

CONCENTRATION QUALIFIERS:
U= Below IDL/MDL
B= Below LOQ

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QUALITY ASSURANCE SUMMARY
FORM 3B
LOW LEVEL MERCURY BLANKS
SDG No.: DHR15

Method: AF
Run Name: 1202603L01
Matrix: WATER
Concentration Units: ng/L

Analyte	Preparation Blank						
	1	2	3	Avg.	Highest	C	Lab Sample ID
Mercury	-0.025	-0.022	0.121	0.025	0.160	U	P02573BB

METHOD:	CONCENTRATION QUALIFIERS:
AF = Cold Vapor Atomic Fluorescence	U= Below IDL/MDL B= Below LOQ

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QUALITY ASSURANCE SUMMARY
FORM 4A
ICP-AES INTERFERENCE CHECK SAMPLE
SDG No.: DHR15

Instrument ID: 11016
Run Name: 1202304T70
Concentration Units: ug/L

Analyte	True		Initial Found				Final Found			
	Sol. A	Sol. AB	Sol. A	%R	Sol. AB	%R	Sol. A	%R	Sol. AB	%R
Aluminum	500000	500000	500967	100.2	498661.6	99.7	512449	102.5	513143.1	102.6
Calcium	500000	500000	482159	96.4	482660.6	96.5	478676	95.7	475688.3	95.1
Chromium	0	500	2		461.3	92.3	2		465.9	93.2
Copper	0	500	-6		507.1	101.4	-6		516.3	103.3
Iron	200000	200000	180054	90.0	178141.7	89.1	183428	91.7	181828.9	90.9
Lead	0	50	4		54.7	109.4	5		50.2	100.4
Magnesium	500000	500000	479328	95.9	479424.0	95.9	472455	94.5	469870.3	94.0
Nickel	0	1000	5		902.6	90.3	6		904.8	90.5
Zinc	0	1000	9		972.8	97.3	9		980.9	98.1

Control Limits: All Metals 80%-120%

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QUALITY ASSURANCE SUMMARY
FORM 5A(MS/MSD)
MATRIX SPIKE/MATRIX SPIKE DUPLICATE
SDG No.: DHR15
Matrix: WATER Level (low/med): LOW

Background Lab Sample ID: 6526806BKG Matrix Spike Lab Sample ID: 6526806MS Matrix Spike Duplicate Lab Sample ID: 6526806MSD
% Solids for Sample: 0.0
Batch Id(s): P02573B

		BKG Sample		MS Sample		MSD Sample		MS Spike	MSD Spike		MS		MSD				Control Limit		
Analyte	Mass	Result	C	Result	C	Result	C	Added	Added	Units	%R	Q	%R	Q	RPD	Q	%R	RPD	M
Mercury		15.9467		96.1067		93.9067		100.0000	100.0000	NG/L	80		78		2		71 - 125	20	AF

METHODS:
P = ICP Atomic Emission Spectrometer CV = Cold Vapor
MS = ICP Mass Spectrometry AF = Cold Vapor Atomic Fluorescence

CONCENTRATION QUALIFIERS:
U= Below MDL, B= Below LOQ
FLAGS:
N = Matrix Spike OOS, * = Duplicate OOS

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QUALITY ASSURANCE SUMMARY
FORM 7
LABORATORY CONTROL SAMPLE
SDG No.: DHR15
Matrix: WATER

Analyte	Mass	Lab Sample ID	Units	True	Found	C	Control Limits (%)	%R	M	In Spec
Chromium		P02016BQ	UG/L	200.00	198.73		90 - 110	99	P	Yes
Copper		P02016BQ	UG/L	250.00	256.07		90 - 110	102	P	Yes
Lead		P02016BQ	UG/L	150.00	158.80		90 - 110	106	P	Yes
Mercury		P02573BQ	NG/L	5.00	4.52		79 - 121	90	AF	Yes
Nickel		P02016BQ	UG/L	500.00	531.67		90 - 111	106	P	Yes
Zinc		P02016BQ	UG/L	500.00	509.27		90 - 110	102	P	Yes

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

CONCENTRATION QUALIFIERS:
U= Below MDL
B= Below LOQ

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QUALITY ASSURANCE SUMMARY
FORM 10
INSTRUMENT DETECTION LIMITS (QUARTERLY)
SDG No.: DHR15

Method: P
Instrument ID: 11016
Date: 01/2012

Analyte	Wavelength (nm)	Background	IDL (UG/L)
Chromium	267.72		1.2
Copper	327.40		1.7
Lead	220.35		2.3
Nickel	231.60		1.3
Zinc	213.86		2.0

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 10
INSTRUMENT DETECTION LIMITS (QUARTERLY)
SDG No.: DHR15

Method: AF
Instrument ID: 10911
Date: 09/2011

Analyte	Wavelength (nm)	Background	IDL (NG/L)
Mercury	254.00		0.16

Comments:

DHR15 #134

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 10 MDL
METHOD DETECTION LIMITS (ANNUALLY)
SDG No.: DHR15
Matrix: WATER

Method: P
Date: 06/2011

Analyte	Wavelength (nm)	Background	LOQ (UG/L)	MDL (UG/L)
Chromium	267.72		15.0	1.1
Copper	327.40		10.0	0.94
Lead	220.35		15.0	2.2
Nickel	231.60		10.0	0.95
Zinc	213.86		20.0	3.2

The LOQ/MDL must be adjusted for % Solids and Sample Weight for samples reporting in mg/kg and ug/L.

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 10 MDL
METHOD DETECTION LIMITS (ANNUALLY)
SDG No.: DHR15
Matrix: WATER

Method: AF
Date: 09/2011

Analyte	Wavelength (nm)	Background	LOQ (NG/L)	MDL (NG/L)
Mercury	254.00		0.50	0.16

The LOQ/MDL must be adjusted for % Solids and Sample Weight for samples reporting in mg/kg and ug/L.

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 11
ICP INTERELEMENT CORRECTION FACTORS (BIANNUALLY)
SDG No.: DHR15

Instrument ID: 11016
Date: 11/2011

Analyte	Wavelength (nm)	Interelement Correction Factor for: AL	CA	FE	MG	CO
Chromium	267.72	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Copper	327.40	0.0000000	0.0000270	-0.0000340	0.0000000	0.0003680
Lead	220.35	0.0002140	0.0000000	0.0000180	0.0000000	-0.0003200
Nickel	231.60	0.0000000	0.0000000	-0.0000200	0.0000000	-0.0006060
Zinc	213.86	0.0000000	0.0000000	0.0001000	0.0000000	0.0000000

Comments:

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QUALITY ASSURANCE SUMMARY
FORM 11
ICP INTERELEMENT CORRECTION FACTORS (BIANNUALLY)
SDG No.: DHR15

Instrument ID: 11016
Date: 11/2011

Analyte	Wavelength (nm)	Interelement Correction Factor for: CU	MO	NI	SI	TI
Chromium	267.72	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Copper	327.40	0.0000000	0.0000000	0.0000000	0.0000000	-0.0032500
Lead	220.35	0.0011000	-0.0027500	-0.0000400	0.0001920	0.0000000
Nickel	231.60	0.0000000	0.0009920	0.0000000	0.0000000	0.0000000
Zinc	213.86	0.0005830	0.0000000	0.0067400	0.0000000	-0.0008780

Comments:

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QUALITY ASSURANCE SUMMARY
FORM 11
ICP INTERELEMENT CORRECTION FACTORS (BIANNUALLY)
SDG No.: DHR15

Instrument ID: 11016
Date: 11/2011

Analyte	Wavelength (nm)	Interelement Correction Factor for: V	--	--	--	--
Chromium	267.72	0.0000000				
Copper	327.40	0.0000000				
Lead	220.35	0.0000000				
Nickel	231.60	0.0000000				
Zinc	213.86	0.0000000				

Comments:

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QUALITY ASSURANCE SUMMARY
FORM 12
LINEAR RANGES
SDG No.: DHR15

Method: P
Instrument ID: 11016
Date: 01/2012

Analyte	Wavelength (nm)	Integration Time (Sec.)	Concentration (ug/L)
Chromium	267.72	10.00	20000.0
Copper	327.4	10.00	20000.0
Lead	220.35	10.00	20000.0
Nickel	231.6	10.00	20000.0
Zinc	213.86	10.00	10000.0

Comments:

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

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QUALITY ASSURANCE SUMMARY
FORM 13
PREPARATION LOG
SDG No.: DHR15

Method: P
Batch ID: P02016B

Lab Sample ID	Date	Initial Volume(ml)	Final Volume(ml)
6526806	01/22/2012	50.00	50
6526807	01/22/2012	50.00	50
P02016BB	01/22/2012	50.00	50
P02016BQ	01/22/2012	1.00	1

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

LEGEND:
BKG = Background
DUP = Duplicate
MS = Matrix Spike
MSD = Matrix Spike Duplicate
B = Blank
Q = Laboratory Control Sample
Y = Laboratory Control Sample Duplicate

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QUALITY ASSURANCE SUMMARY
FORM 13
PREPARATION LOG
SDG No.: DHR15

Method: AF
Batch ID: P02573B

Lab Sample ID	Date	Initial Volume(ml)	Final Volume(ml)
6526807	01/25/2012	100.00	100
6526806BKG	01/25/2012	100.00	100
6526806MSD	01/25/2012	100.00	100
6526806MS	01/25/2012	100.00	100
P02573BB	01/25/2012	100.00	100
P02573BQ	01/25/2012	1.00	1

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

LEGEND:
BKG = Background
DUP = Duplicate
MS = Matrix Spike
MSD = Matrix Spike Duplicate
B = Blank
Q = Laboratory Control Sample
Y = Laboratory Control Sample Duplicate

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QUALITY ASSURANCE SUMMARY
FORM 14
ANALYSIS RUN LOG
SDG No.: DHR15

Method: P
Instrument ID: 11016
Run Name: 1202304T70

Run Start Date: 01/23/2012
Run End Date: 01/23/2012

Lab Sample ID	D/F	Time	Analytes CR	CU	PB	HG	NI	ZN
S0	1.00	08:52	X	X	X		X	X
S	1.00	08:56						
S	1.00	09:00		X	X		X	X
S	1.00	09:04	X					
ICV	1.00	09:08	X	X	X		X	X
ICV	1.00	09:12	X	X	X		X	X
ICB	1.00	09:16	X	X	X		X	X
LLC	1.00	09:19	X	X	X		X	X
ICSA	1.00	09:23	X	X	X		X	X
ICSAB	1.00	09:27	X	X	X		X	X
CCV	1.00	09:31	X	X	X		X	X
CCB	1.00	09:35	X	X	X		X	X
P02016BB	1.00	09:39	X	X	X		X	X
P02016BQ	1.00	09:43	X	X	X		X	X
ZZZZZZ	1.00	09:47						
ZZZZZZ	1.00	09:51						
ZZZZZZ	1.00	09:54						
ZZZZZZ	1.00	09:58						
ZZZZZZ	5.00	10:02						
ZZZZZZ	1.00	10:06						
ZZZZZZ	1.00	10:10						
ZZZZZZ	1.00	10:14						
CCV	1.00	10:18	X	X	X		X	X
CCB	1.00	10:22	X	X	X		X	X
ZZZZZZ	1.00	10:25						
ZZZZZZ	1.00	10:30						
6526806	1.00	10:34	X	X	X		X	X
6526807	1.00	10:38	X	X	X		X	X
ZZZZZZ	1.00	10:41						
ZZZZZZ	1.00	10:45						
LLC	1.00	10:49	X	X	X		X	X
ICSA	1.00	10:53	X	X	X		X	X
ICSAB	1.00	10:57	X	X	X		X	X
CCV	1.00	11:01	X	X	X		X	X
CCB	1.00	11:05	X	X	X		X	X

METHODS:
- P = ICP Atomic Emission Spectrometer
- MS = ICP Mass Spectrometry
- CV = Cold Vapor
- AF = Cold Vapor Atomic Fluorescence

LEGEND:
- BKG = Background
- DUP = Duplicate
- MS = Matrix Spike
- MSD = Matrix Spike Duplicate
- A = Post Digest Spike
- L = Serial Dilution
- B = Blank
- Q = Laboratory Control Sample
- Y = Laboratory Control Sample Duplicate

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QUALITY ASSURANCE SUMMARY
FORM 14
ANALYSIS RUN LOG
SDG No.: DHR15

Method: AF
Instrument ID: 10911
Run Name: 1202603L01

Run Start Date: 01/26/2012
Run End Date: 01/26/2012

Lab Sample ID	D/F	Time	Analytes					
			CR	CU	PB	HG	NI	ZN
S0	1.00	14:57				X		
S0	1.00	15:04				X		
S0	1.00	15:12				X		
S0.5	1.00	15:20				X		
S5.0	1.00	15:27				X		
S25.0	1.00	15:35				X		
S50.0	1.00	15:43				X		
S100.0	1.00	15:50				X		
CCS	1.00	15:58				X		
CCS	1.00	21:12				X		
ICV	1.00	21:20				X		
P02573BB	1.00	21:27				X		
LLC	1.00	21:35				X		
P02573BQ	1.00	21:43				X		
6526806BKG	20.00	21:50				X		
ZZZZZZ	1.00	21:58						
ZZZZZZ	1.00	22:06						
6526806MS	20.00	22:16				X		
6526806MSD	20.00	22:24				X		
P02573BB	1.00	22:32				X		
6526807	10.00	22:39				X		
ZZZZZZ	1.00	22:47						
ZZZZZZ	20.00	22:55						
ZZZZZZ	1.00	23:02						
P02573BB	1.00	23:10				X		
CCV	1.00	23:18				X		

METHODS:
- P = ICP Atomic Emission Spectrometer
- MS = ICP Mass Spectrometry
- CV = Cold Vapor
- AF = Cold Vapor Atomic Fluorescence

LEGEND:
- BKG = Background
- DUP = Duplicate
- MS = Matrix Spike
- MSD = Matrix Spike Duplicate
- A = Post Digest Spike
- L = Serial Dilution
- B = Blank
- Q = Laboratory Control Sample
- Y = Laboratory Control Sample Duplicate

Instrumental Wet Chemistry Data

Case Narrative
Conformance/Non-Conformance Summary

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CLIENT: CH2M Hill, Inc.
SDG: DHR15

Instrumental Water Quality

Sample #	Matrix Liquid	Solid	Comments
6526806	X		
6526807	X		

ANALYSIS:

Dilutions are listed in the table below:

Samples	Total Organic Carbon
6526806	DF50

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

Site specific matrix QC samples were not submitted for this SDG. The batch matrix QC was performed on samples from another project. Therefore the matrix effects would not be relevant and matrix QC is not provided in the data package. Laboratory spike data (LCS) are provided.

Method defined actions are taken for any failed matrix QC.

DATA INTERPRETATION:

No further interpretation is necessary for the data submitted.

Abbreviation Key

U = Unspiked (for MS/MSD)	LOQ = Limit of Quantitation
R = Matrix Spike (MS)	MDL = Method Detection Limit
M = Matrix Spike Duplicate (MSD)	ND = Not Detected
BKG = Background (for Duplicate)	J = Estimated Value
D = Duplicate (DUP)	NA = Not Applicable
HS = High Spike	ME = Method
LS = Low Spike	CO = Colorimetric
SS = Soluble Spike	G = Gravimetric
IS = Insoluble Spike	IR = Infrared Spectrophotometry
ISD = Insoluble Spike Duplicate	MTR = Meter
PDS = Post Digestion Spike	OD = Oven Dried
* = Out of Specification	TI = Titration
V = Visual	TOC = Total Organic Carbon
AK = Alpkem	IC = Ion Chromatography
TC = Total Carbon	RA = Rapid Analyzer

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CLIENT: CH2M Hill, Inc.
SDG: DHR15

Narrative Reviewed and Approved by:

Patricia Weirich for Date 2-2-12

Dana Kauffman
Manager of Data Deliverables

Quality Control and Calibration Summary Forms

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Quality Control Reference List
Instrumental Water Quality

CLIENT: CH2M Hill, Inc.
SDG: DHR15

Analyte	Batch Number	Sample Number
Total Cyanide (water)	12020102101A	6526806
		6526807
		Blank
		LCS
Total Organic Carbon	12024049502A	6526806
		6526807
		Blank
		LCS

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Quality Control Summary
Method Blank
Instrumental Water Quality
SDG: DHR15
Matrix: LIQUID

Analyte	Analysis Date	Method	Batch Number	Blank Results	Units	MDL	LOQ
Total Cyanide (water)	01/23/12	AK	12020102101	N.D.	mg/l	0.0050	0.010
Total Organic Carbon	01/24/12	TOC	12024049502	N.D.	mg/l	0.50	1.0

Comments: The blank is acceptable when the result is less than the limit of quantitation.

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate (LCSD)
Instrumental Water Quality
SDG: DHR15
Matrix: LIQUID

Batch #	Analyte	Analysis Date	ME	True LCS/LCSD Value	LCS Results	LCSD Results	Units	Acceptance Range	% RPD Results	% RPD Acceptance <=
12020102101	Total Cyanide (water)	01/23/12	AK	0.2	0.20	NA	mg/l	0.179 - 0.2208	NA	NA
12024049502	Total Organic Carbon	01/24/12	TOC	25	23.5	NA	mg/l	22.63 - 28.35	NA	NA

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Quality Control Summary
Initial And Continuing Calibration
Instrumental Analysis/TCN

SDG: DHR15

Instrument ID: 09106
Calibration Date: 01/23/2012

Analysis	AUTO CAL1	AUTO CAL2	AUTO CAL3	AUTO CAL4	AUTO CAL5	AUTO CAL6	CC
Total Cyanide	0.4115	0.4864	0.7266	1.0887	1.8338	2.9562	1.0000

Acceptance Range:
ICV/CCV: +/- 10%
ICB/CCB: < MDL

Concentration units: mg/L

Batch Numbers: 12020102101A
Run Start Dates: 01/23/2012
Run Names: 1202302C02

	Total Cyanide		
Sample	True	Result	%Rec
ICV	0.15	0.14840	99
ICB	0	ND	NA
CCV2	0.15	0.15290	102
CCB 1	0	ND	NA

DHR15 01/23/12

* = Out of Specifications

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Quality Control Summary
Initial And Continuing Calibration
Instrumental Analysis/TOC

SDG: DHR15

Instrument ID: 15610
Calibration Date: 12/28/2011

Analysis	AUTO CAL1	AUTO CAL2	AUTO CAL3	AUTO CAL4	AUTO CAL5	AUTO CAL6	CC
TOC	10248	61430	79675	203192	394552	803143	1.0000

Acceptance Range:
ICV/CCV: 90%-110%
ICB/CCB: < LOQ

Concentration units: mg/L

Batch Numbers: 12024049502A
Run Start Dates: 01/24/2012
Run Names: 1202401G03

	TOC		
Sample	True	Result	%Rec
ICV	25	24.788	99
ICB	0	ND	NA
CCV2	25	24.060	96
CCB	0	ND	NA
CCV2	25	23.663	95
CCB	0	ND	NA

DHR15 0155

* = Out of Specification are immediately followed by two acceptable CCVs

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LOQ/MDL Summary
Instrumental Water Quality

SDG: DHR15

Fraction:

Parameter	Default MDL	Default LOQ	Units
Total Cyanide (water)	0.0050	0.010	mg/l
Total Organic Carbon	0.50	1.0	mg/l

DHR15 0155

Extraction/Distillation/Digestion Logs Data

Lancaster Laboratories

Raw Data Logbook
Total Cyanide/Distillations
Analysis #492, 5896, 8256

Start Time: 0840
Cool Time: 1025
Finish: 1040

Batch No. | 1 | 2 | 0 | 2 | 0 | | 1 | 0 | 2 | | 1 | 0 | 1 | | A |

Enter 102 for Analysis 492, 5896
Enter 117 for Analysis 8256

Analysis: 0492 Date: 1-20-12 Analyst: MJB

Std. Ref. (Book/Page/Line): 140759 p. 19 l. 7-8

Bottle Code	Sample Number	Initial Volume (mL)	Initial Weight (g)	Comments/True Values	SDG
	LCSW	50		+.5mL 20 mg/L KCN	
	PBW	50			
02A	6526370	50			
	6526806	50			DHR15 +/
	6526807	50			
	6526837	50			
	6526838	50			
	6526839	50			
	6527124 (L)	50			
	6527124 (D)	50			
	6527124 (R)	50		+.5mL 20 mg/L KCN	

Please Note: Final extraction volume is 50 mL

DNR15 8157

Verified: SM-495 Date: 1.21.12

1095.01

142487 54

Wet Chemistry Data

Case Narrative
Conformance/Non-Conformance
Summary

eurofins | Lancaster Laboratories

CLIENT: CH2M Hill, Inc.
SDG: DHR15

Miscellaneous Wet Chemistry

Sample #	Matrix Liquid	Solid	Comments
6526806	X		
6526807	X		

ANALYSIS:

Dilutions are listed in the table below:

Samples	Biochemical Oxygen Demand
6526806	DF10

QUALITY CONTROL AND NONCONFORMANCE SUMMARY:

Site specific matrix QC samples were not submitted for this SDG. The batch matrix QC was performed on samples from another project. Therefore the matrix effects would not be relevant and matrix QC is not provided in the data package. Laboratory spike data (LCS) are provided.

Method defined actions are taken for any failed matrix QC.

DATA INTERPRETATION:

No further interpretation is necessary for the data submitted.

Abbreviation Key

U = Unspiked (for MS/MSD)	LOQ = Limit of Quantitation
R = Matrix Spike (MS)	MDL = Method Detection Limit
M = Matrix Spike Duplicate (MSD)	ND = Not Detected
BKG = Background (for Duplicate)	J = Estimated Value
D = Duplicate (DUP)	NA = Not Applicable
HS = High Spike	ME = Method
LS = Low Spike	CO = Colorimetric
SS = Soluble Spike	G = Gravimetric
IS = Insoluble Spike	IR = Infrared Spectrophotometry
ISD = Insoluble Spike Duplicate	MTR = Meter
PDS = Post Digestion Spike	OD = Oven Dried
* = Out of Specification	TI = Titration
V = Visual	TOC = Total Organic Carbon
AK = Alpkem	IC = Ion Chromatography
TC = Total Carbon	RA = Rapid Analyzer

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CLIENT: CH2M Hill, Inc.
SDG: DHR15

Narrative Reviewed and Approved by:

Patricia Weirich for Date 1-2-12

Dana Kauffman
Manager of Data Deliverables

Quality Control and Calibration Summary Forms

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Quality Control Reference List
Miscellaneous Wet Chemistry

CLIENT: CH2M Hill, Inc.
SDG: DHR15

Analyte	Batch Number	Sample Number
Biochemical Oxygen Demand	12020023501A	6526806 6526807 LCS
HEM (oil & grease)	12026807901A	6526806 6526807 Blank LCS/LCSD
Total Suspended Solids	12020020601A	6526806 6526807 Blank LCS

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Quality Control Summary
Method Blank
Miscellaneous Wet Chemistry
SDG: DHR15
Matrix: LIQUID

Analyte	Analysis Date	Method	Batch Number	Blank Results	Units	MDL	LOQ
HEM (oil & grease)	01/26/12	G	12026807901	2.3	mg/l	1.4	5.0
Total Suspended Solids	01/20/12	G	12020020601	N.D.	mg/l	3.0	12.0

Comments: The blank is acceptable when the result is less than the limit of quantitation.

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Quality Control Summary
Laboratory Control Standard (LCS)
Laboratory Control Standard Duplicate (LCSD)
Miscellaneous Wet Chemistry
SDG: DHR15
Matrix: LIQUID

Batch #	Analyte	Analysis Date	ME	True LCS/LCSD Value	LCS Results	LCSD Results	Units	Acceptance Range	% RPD Results	% RPD Acceptance </=
12020023501	Biochemical Oxygen Demand	01/20/12	MTR	198	191	NA	mg/l	167.5 - 228.5	NA	NA
12026807901	HEM (oil & grease)	01/26/12	G	40	32.3	33.9	mg/l	31 - 45.7	5	16
12020020601	Total Suspended Solids	01/20/12	G	150	144	NA	mg/l	120 - 158	NA	NA

Appendix E
Data Quality Evaluations

Data Quality Evaluation for the Groundwater Investigation, Dow Hanging Rock Facility

PREPARED FOR: The Dow Chemical Corporation

PREPARED BY: CH2M HILL

DATE: February, 2012

Introduction

The objective of this data quality evaluation (DQE) report is to assess the data quality of analytical results for groundwater samples collected from the Dow Hanging Rock Facility in Ironton, Ohio. CH2M HILL collected samples January 18, 2012. Guidance for this DQE report came from the *Quality Assurance Project Plan Dow Hanging Rock, Ironton, Ohio* (HR QAPP), *November 2011;* the *U.S. Environmental Protection Agency (USEPA) Contract Laboratory National Functional Guidelines for Organic Data Review, October 1999;* and, individual method requirements.

The analytical results were evaluated using the criteria of precision, accuracy, representativeness, comparability and completeness (PARCC) presented in the HR QAPP. This report is intended as a general data quality assessment designed to summarize data issues.

Analytical Data

This DQE report covers two groundwater samples, one field duplicate (FD), and one trip blank (TB). The samples were reported in one sample delivery group (SDG) listed as DHR15. Samples were collected and delivered to Lancaster Laboratories (LANC) in Lancaster, Pennsylvania. The samples were analyzed by the method listed in Table 1.

TABLE 1
Analytical Parameters
Groundwater Investigation, Dow Hanging Rock Facility

Parameter	Method	Laboratory
Volatile Organic Compounds (VOC)	EPA 624	LANC

The SDG was assessed by reviewing the following:

1. The chain-of- custody documentation
2. Holding-time compliance
3. Initial and continuing calibration criteria
4. Method blanks/field blanks

5. Laboratory control sample/laboratory control sample duplicates (LCS/LCSD)
6. Surrogate spike recoveries
7. Internal standard recoveries
8. Matrix spike/matrix spike duplicates (MS/MSD)
9. FD precision
10. The required quality control (QC) samples at the specified frequencies

Data flags were assigned according to the HR QAPP. Multiple flags are routinely applied to specific sample method/matrix/analyte combinations, but there will only be one final flag. A final flag is applied to the data and is the most conservative of the applied validation flags. The final flag also includes matrix and blank sample impacts.

The data flags are those listed in the HR QAPP and are defined below:

- J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- R = The sample result was rejected due to serious deficiencies in the ability to analyze the sample and meet the QC criteria. The presence or absence of the analyte could not be verified.
- U = The analyte was analyzed for but was not detected above the reported sample quantitation limit.
- UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

Findings

The overall summaries of the data validation are contained in the following sections. Qualified data are presented in Table 2.

Holding Time and Preservation

The compound 2-chloroethyl-vinyl ether was rejected for project use and flagged "R" due to the use of hydrochloric acid (HCl) preservation in the samples. If 2-chloroethyl-vinyl ether is a target analyte of interest, the samples must be collected without HCl preservation.

Calibration

Initial and continuing calibration analyses were performed as required and all acceptance criteria were met.

Method Blanks

Method blanks were analyzed at the required frequency and were free of contamination.

Laboratory Control Samples

LCS/LCSDs were analyzed as required and all accuracy and precision criteria were met.

Field Blanks

A TB was collected, analyzed and was free of contamination.

Internal Standards

All internal standard acceptance criteria were met.

Surrogates

Surrogates were added to all samples and all acceptance criteria were met.

Matrix Spike Samples

MS/MSD samples were analyzed as required and all acceptance criteria were met with the following exceptions:

Chloromethane was recovered less than the lower control limit in the MS/MSD for sample WW5-0000-011812, indicating a possible low bias. The result was qualified as an estimated non-detect and flagged "UJ" in the parent sample. In addition, 2-chloroethyl-vinyl ether was not recovered in the MS/MSD, indicating a significant low bias. The result was rejected for project use and flagged "R" in the sample.

Field Duplicates

An FD was collected and analyzed, and all precision criteria were met.

Chain of Custody

Required procedures were followed and no discrepancies were noted.

Overall Assessment

The goal of this assessment is to demonstrate that a sufficient number of representative samples were collected and the resulting analytical data can be used to support the decision-making process. The following summary highlights the PARCC findings for the above-defined events.

Precision of the data was verified through the review of the field and laboratory data quality indicators, which include LCS/LCSD, MS/MSD, and FD relative percent differences (RPDs). Precision was acceptable.

Accuracy of the data was verified through the review of the calibration data, MS/MSD, LCS/LCSDs, internal standards and surrogate standard recoveries, as well as the evaluation of method/ field blank data. Accuracy was generally acceptable with the exception of chloromethane, which was qualified as an estimated non-detected result in one sample due to MS/MSD issues. In addition, 2-chloroethyl-vinyl ether was rejected for project use in one sample due to MS/MSD issues. No data were qualified due to contamination in the method and/or field blanks. Data users should consider the impact to any result that is qualified as estimated as it may contain a bias which could affect the decision-making process.

Representativeness of the data was verified through the samples' collection, storage, and preservation procedures and the verification of holding-time compliance. The compound 2-chloroethyl-vinyl ether was rejected for project use and flagged "R" due to the use of HCl

preservation in the samples. If 2-chloroethyl-vinyl ether is a target analyte of interest, the samples must be collected without HCl preservation. All samples were reported from analyses within the USEPA-recommended holding time.

Comparability of the data was ensured through the use of standard USEPA analytical procedures and standard units for reporting. Results obtained are comparable to industry standards in that the collection and analytical techniques followed approved, documented procedures.

Completeness is a measure of the number of valid measurements obtained in relation to the total number of measurements planned. Completeness is expressed as the percentage of valid or usable measurements compared to planned measurements. Valid data are defined as all data that are not rejected for project use. All data were considered valid with the exception of 2-chloroethyl-vinyl ether, which was rejected for project use in all samples. The completeness goal of 95 percent was met for all compounds except 2-chloroethyl-vinyl ether, which was zero percent complete.

TABLE 2
Data Qualification Summary
Groundwater Investigation, Dow Hanging Rock Facility

NativeID	Method	Analyte	Unit	Final Result	Final Flag	Reason
HGR-011812-FD01	E624	2-Chloroethyl-vinyl ether	ug/L	2	R	Preservation
WW2-0000-011812	E624	2-Chloroethyl-vinyl ether	ug/L	2	R	Preservation
WW5-0000-011812	E624	2-Chloroethyl-vinyl ether	ug/L	2	R	Preservation, MS<LCL, SD<LCL
WW5-0000-011812	E624	Chloromethane	UG/L	2	UJ	MS<LCL, SD<LCL

Notes:
Validation Reasons:
MS<LCL The matrix spike recovered less than the lower control limit.
Preservation The samples were incorrectly preserved.
SD<LCL The matrix spike duplicate recovered less than the lower control limit.

Data Quality Evaluation for the Sediment Investigation, Dow Hanging Rock Facility

PREPARED FOR: The Dow Chemical Corporation

PREPARED BY: CH2M HILL

DATE: February, 2012

Introduction

The objective of this data quality evaluation (DQE) report is to assess the data quality of analytical results for sediment samples collected from the Dow Hanging Rock Facility in Ironton, Ohio. CH2M HILL collected samples January 18, 2012. Guidance for this DQE report came from the *Quality Assurance Project Plan Dow Hanging Rock, Ironton, Ohio* (HR QAPP), *November 2011;* the *U.S. Environmental Protection Agency (USEPA) Contract Laboratory National Functional Guidelines for Organic Data Review, October 1999;* the *USEPA Contract Laboratory National Function Guidelines for Inorganic Data Review, October 2004;* and individual method requirements.

The analytical results were evaluated using the criteria of precision, accuracy, representativeness, comparability and completeness (PARCC) presented in the HR QAPP. This report is intended as a general data quality assessment designed to summarize data issues.

Analytical Data

This DQE report covers six sediment samples, one field duplicate (FD), and one trip blank (TB). The samples were reported in one sample delivery group (SDG) listed as DHR13. Samples were collected and delivered to Lancaster Laboratories (LANC) in Lancaster, Pennsylvania. The samples were analyzed by the methods listed in Table 1.

TABLE 1
Analytical Parameters
Sediment Investigation, Dow Hanging Rock Facility

Parameter	Method	Laboratory
Volatile Organic Compounds (VOC)	SW8260B	LANC
Semivolatile Organic Compounds (SVOC)	SW8270C	LANC
RCRA Metals	SW6010B/6020/7471A	LANC

The SDG was assessed by reviewing the following:

1. The chain-of- custody documentation
2. Holding-time compliance
3. Initial and continuing calibration criteria
4. Method blanks/field blanks
5. Laboratory control sample/laboratory control sample duplicates (LCS/LCSD)
6. Surrogate spike recoveries
7. Internal standard recoveries
8. Matrix spike/matrix spike duplicates (MS/MSD)
9. FD precision
10. The required quality control (QC) samples at the specified frequencies.

Data flags were assigned according to the HR QAPP. Multiple flags are routinely applied to specific sample method/matrix/analyte combinations, but there will only be one final flag. A final flag is applied to the data and is the most conservative of the applied validation flags. The final flag also includes matrix and blank sample impacts.

The data flags are those listed in the HR QAPP and are defined below:

- J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- R = The sample result was rejected due to serious deficiencies in the ability to analyze the sample and meet the QC criteria. The presence or absence of the analyte could not be verified.
- U = The analyte was analyzed for but was not detected above the reported sample quantitation limit.
- UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

Findings

The overall summaries of the data validation are contained in the following sections. Qualified data are presented in Table 2.

Holding Time and Preservation

All acceptance criteria were met.

Calibration

Initial and continuing calibration analyses were performed as required and all acceptance criteria were met with the following exception:

The percent difference for hexachlorobutadiene was less than method criteria in the VOC initial calibration verification standard, indicating a possible low bias. The data were qualified as estimated non-detects and flagged "UJ" in the samples.

Method Blanks

Method blanks were analyzed at the required frequency and were free of contamination.

Laboratory Control Samples

LCS/LCSDs were analyzed as required and all accuracy and precision criteria were met with the following exceptions:

Vinyl acetate was recovered greater than the upper control limits in the VOC LCS/LCSD, indicating a possible high bias. The data were not qualified because the associated samples did not contain reportable levels of this analyte.

The recovery of 2-chloronaphthalene was greater than the upper control limit in the SVOC LCS, indicating a possible high bias. The data were not qualified because the associated samples did not contain reportable levels of this analyte.

Field Blanks

A TB was collected, analyzed and was free of contamination.

Internal Standards

All internal standard acceptance criteria were met with the following exceptions:

One internal standard associated with the VOC analysis was recovered less than method criteria in sample S18-SD01, indicating a possible low bias. The associated results were qualified as estimated non-detected results and flagged "UJ" in the sample.

Surrogates

Surrogates were added to all samples for the methods requiring there use and all acceptance criteria were met.

Matrix Spike Samples

MS/MSD samples were analyzed as required and all acceptance criteria were met with the following exceptions:

A few analytes were recovered less than the lower control limits in the SVOC MS/MSD for sample S18-SD01, indicating a possible low bias. The data were qualified as estimated detected and non-detected results and flagged "J" and "UJ", respectively, in the parent sample. In addition, several analytes were not recovered in the SVOC MS/MSD for sample S18-SD01, indicating a significant low bias. The data were rejected for project use and flagged "R" in the sample.

Lead was recovered less than the lower control limit in the MS/MSD for sample S18-SD01 associated with the metals analysis, indicating a possible low bias. In addition, arsenic, cadmium, and chromium were recovered greater than the upper control limits in the MS/MSD, indicating a possible high bias. The data were qualified as estimated and flagged "J" in the parent sample.

The relative percent difference (RPD) for multiple analytes exceeded criteria in the MS/MSD associated with the VOC, SVOC, and metals analyses. Detected results were qualified as estimated and flagged "J". Non-detected results were not qualified.

Post-Digestion Spikes

Post-digestion spikes were analyzed as required and all acceptance criteria were met with the following exception:

Arsenic was recovered less than method criteria in the post-digestion spike for sample S18-SD01. The result was qualified as estimated and flagged "J" in the sample.

Serial Dilutions

Serial dilutions were analyzed as required and all precision criteria were met.

Field Duplicates

An FD was collectedand analyzed, and all precision criteria were met.

Laboratory Duplicates

Laboratory duplicates were performed as required by the analytical methods. In some cases, other project samples were used to fulfill the laboratory's QC batch requirements. When samples from the Hanging Rock Investigation were used, all precision criteria were met with the following exceptions:

The RPDs for arsenic, barium, chromium, and lead exceeded criteria in the laboratory duplicate for sample S18-SD01. The data were qualified as estimated and flagged "J" in the sample.

Chain of Custody

Required procedures were followed and no discrepancies were noted.

Overall Assessment

The goal of this assessment is to demonstrate that a sufficient number of representative samples were collected and that the resulting analytical data can be used to support the decision-making process. The following summary highlights the PARCC findings for the above-defined events.

Precision of the data was verified through the review of the field and laboratory data quality indicators, which include LCS/LCSD, MS/MSD, laboratory duplicate, serial dilution, and FD RPDs. Precision was generally acceptable with the exception of a few analytes being qualified as estimated due to MS/MSD and/or laboratory duplicate RPD issues. Data users should consider the impact to any result that is qualified as estimated as it may contain a bias which could affect the decision-making process.

Accuracy of the data was verified through the review of the calibration data, MS/MSD, LCS/LCSDs, internal standards, post-digestion spike, and surrogate standard recoveries, as well as, the evaluation of method/ field blank data. Accuracy was generally acceptable with the exception of several analytes being qualified as estimated detected and non-detected results due to calibration, MS/MSD, internal standard, and/or post-digestion spike

issues. In addition, several analytes were rejected for project use in sample S18-SD01 due to MS/MSD issues. No data were qualified due to contamination in the method and/or field blanks.

Representativeness of the data was verified through the sample's collection, storage, and preservation procedures and the verification of holding-time compliance. No observations related to sample preservation or storage of the samples were noted by the laboratory. All samples were reported from analyses within the USEPA-recommended holding time.

Comparability of the data was ensured through the use of standard USEPA analytical procedures and standard units for reporting. Results obtained are comparable to industry standards in that the collection and analytical techniques followed approved, documented procedures.

Completeness is a measure of the number of valid measurements obtained in relation to the total number of measurements planned. Completeness is expressed as the percentage of valid or usable measurements compared to planned measurements. Valid data are defined as all data that are not rejected for project use. All data were considered valid with the exception of a few SVOC analytes which were rejected for project use in one sample. The completeness goal of 95 percent was met for all compounds except the following SVOC compounds, which were 85 percent complete: 1,4-dioxane; benzyl alcohol; hexachlorocyclopentadiene; 2,4-dinitrophenol; 4-nitrophenol; and 3,3'-dichlorobenzidine.

TABLE 2
Data Qualification Summary
Sediment Investigation, Dow Hanging Rock Facility

NativeID	Method	Analyte	Unit	Final Result	Final Flag	Reason
HGR-011812-FD02	SW8260B	Hexachlorobutadiene	UG/KG	3	UJ	ICVS<LCL
S17-SD01	SW8260B	Hexachlorobutadiene	UG/KG	3	UJ	ICVS<LCL
S18-SD01	SW6010B	Barium	MG/KG	98.5	J	Lab Dup RPD
S18-SD01	SW6010B	Cadmium	MG/KG	0.709	J	SD>UCL, MSRPD
S18-SD01	SW6010B	Chromium	MG/KG	46.5	J	SD>UCL, Lab Dup RPD
S18-SD01	SW6010B	Lead	MG/KG	33.2	J	MS<LCL, MSRPD, Lab Dup RPD
S18-SD01	SW6020	Arsenic	MG/KG	6.47	J	MS>UCL, SD>UCL, PDS<LCL, Lab Dup RPD
S18-SD01	SW8260B	1,1,2,2-Tetrachloroethane	UG/KG	1	UJ	IS<LCL
S18-SD01	SW8260B	1,2,3-Trichlorobenzene	UG/KG	1	UJ	IS<LCL
S18-SD01	SW8260B	1,2,3-Trichloropropane	UG/KG	1	UJ	IS<LCL
S18-SD01	SW8260B	1,2,4-Trichlorobenzene	UG/KG	1	UJ	IS<LCL
S18-SD01	SW8260B	1,2,4-Trimethylbenzene	UG/KG	1	UJ	IS<LCL
S18-SD01	SW8260B	1,2-Dibromo-3-chloropropane	UG/KG	3	UJ	IS<LCL
S18-SD01	SW8260B	1,2-Dichlorobenzene	UG/KG	1	UJ	IS<LCL
S18-SD01	SW8260B	1,3,5-Trimethylbenzene	UG/KG	1	UJ	IS<LCL

TABLE 2
Data Qualification Summary
Sediment Investigation, Dow Hanging Rock Facility

NativeID	Method	Analyte	Unit	Final Result	Final Flag	Reason
S18-SD01	SW8260B	1,3-Dichlorobenzene	UG/KG	1	UJ	IS<LCL
S18-SD01	SW8260B	1,4-Dichlorobenzene	UG/KG	1	UJ	IS<LCL
S18-SD01	SW8260B	2-Chlorotoluene	UG/KG	1	UJ	IS<LCL
S18-SD01	SW8260B	4-Chlorotoluene	UG/KG	1	UJ	IS<LCL
S18-SD01	SW8260B	Bromobenzene	UG/KG	1	UJ	IS<LCL
S18-SD01	SW8260B	Hexachlorobutadiene	UG/KG	3	UJ	IS<LCL, ICVS<LCL
S18-SD01	SW8260B	Naphthalene	UG/KG	1	UJ	IS<LCL
S18-SD01	SW8260B	N-Butylbenzene	UG/KG	1	UJ	IS<LCL
S18-SD01	SW8260B	N-Propylbenzen	UG/KG	1	UJ	IS<LCL
S18-SD01	SW8260B	P-Isopropyltoluene	UG/KG	1	UJ	IS<LCL
S18-SD01	SW8260B	Sec-Butlybenzene	UG/KG	1	UJ	IS<LCL
S18-SD01	SW8260B	Tert-Butylbenzene	UG/KG	1	UJ	IS<LCL
S18-SD01	SW8270C	1,4-Dioxane	UG/KG	1400	R	SD<LCL
S18-SD01	SW8270C	2,4-Dinitrophenol	UG/KG	4300	R	MS<LCL, SD<LCL
S18-SD01	SW8270C	3,3'-Dichlorobenzidine	UG/KG	1400	R	MS<LCL, SD<LCL
S18-SD01	SW8270C	4-Nitrophenol	UG/KG	2400	R	MS<LCL, SD<LCL
S18-SD01	SW8270C	Benzyl Alcohol	UG/KG	2400	R	MS<LCL, SD<LCL
S18-SD01	SW8270C	Chrysene	UG/KG	850	J	SD<LCL
S18-SD01	SW8270C	Hexachlorocylcopentadiene	UG/KG	2400	R	MS<LCL, SD<LCL
S18-SD01	SW8270C	Hexachloroethane	UG/KG	480	UJ	MS<LCL, SD<LCL
S18-SD01	SW8270C	Pyrene	UG/KG	1600	J	SD<LCL
S18-SD02	SW8260B	Hexachlorobutadiene	UG/KG	3	UJ	ICVS<LCL
S18-SD03	SW8260B	Hexachlorobutadiene	UG/KG	2	UJ	ICVS<LCL
S18-SD04	SW8260B	Hexachlorobutadiene	UG/KG	2	UJ	ICVS<LCL
S18-SD05	SW8260B	Hexachlorobutadiene	UG/KG	3	UJ	ICVS<LCL

Notes:
Validation Reasons:

ICVS<LCL	The initial calibration verification standard recovered less than method criteria.
IS<LCL	The internal standard recovered less than method criteria.
LabDup RPD	The relative percent difference exceeded criteria in the laboratory duplicate.
MS<LCL	The matrix spike recovered less than the lower control limit.
MS>UCL	The matrix spike recovered greater than the upper control limit.
MSRPD	The relative percent difference exceeded control limit in the MS/MSD.
PDS<LCL	The post digestion spike recovered less than the lower control limit.
SD<LCL	The matrix spike duplicate recovered less than the lower control limit.
SD>UCL	The matrix spike duplicate recovered greater than the upper control limit.

Appendix F
Detection Limit Evaluation

TABLE F-1
SWMU-01 Soil: Detection Limit Evaluation
Site Investigation, Dow Hanging Rock, Ironton, Ohio

CAS Number	Analyte	Minimum Detected Concentration	Maximum Detected Concentration	Units	Location of Maximum Detection	Frequency of Detection	Range of Detection Limits	Screening Level	Detected Frequency of Exceedance	Non-Detect Frequency of Exceedance
630-20-6	1,1,1,2-Tetrachloroethane			MG/KG		0 / 27	0.0009 - 0.054	9.3E+00	0 / 27	0 / 27
71-55-6	1,1,1-Trichloroethane			MG/KG		0 / 27	0.0009 - 0.054	3.8E+03	0 / 27	0 / 27
79-34-5	1,1,2,2-Tetrachloroethane			MG/KG		0 / 26	0.0009 - 0.054	2.8E+00	0 / 26	0 / 26
79-00-5	1,1,2-Trichloroethane			MG/KG		0 / 27	0.0009 - 0.054	6.8E-01	0 / 27	0 / 27
75-34-3	1,1-Dichloroethane			MG/KG		0 / 27	0.0009 - 0.054	1.7E+01	0 / 27	0 / 27
75-35-4	1,1-Dichloroethene			MG/KG		0 / 27	0.0009 - 0.054	1.1E+02	0 / 27	0 / 27
563-58-6	1,1-Dichloropropene			MG/KG		0 / 27	0.0009 - 0.054	1.1E+02	0 / 27	0 / 27
87-61-6	1,2,3-Trichlorobenzene			MG/KG		0 / 26	0.0009 - 0.054	4.9E+01	0 / 26	0 / 26
96-18-4	1,2,3-trichloropropane			MG/KG		0 / 26	0.0009 - 0.054	9.5E-02	0 / 26	0 / 26
120-82-1	1,2,4-Trichlorobenzene			MG/KG		0 / 26	0.0009 - 0.054	2.7E+01	0 / 26	0 / 26
95-63-6	1,2,4-trimethylbenzene	2.0E-03 J	2.0E-03 J	MG/KG	S01-SS07	1 / 26	0.0009 - 0.054	2.6E+01	0 / 26	0 / 25
96-12-8	1,2-Dibromo-3-chloropropane			MG/KG		0 / 26	0.002 - 0.11	6.9E-02	0 / 26	3 / 26
106-93-4	1,2-Dibromoethane			MG/KG		0 / 27	0.0009 - 0.054	1.7E-01	0 / 27	0 / 27
107-06-2	1,2-Dichloroethane			MG/KG		0 / 27	0.0009 - 0.054	2.2E+00	0 / 27	0 / 27
78-87-5	1,2-Dichloropropane			MG/KG		0 / 27	0.0009 - 0.054	4.7E+00	0 / 27	0 / 27
108-67-8	1,3,5-trimethylbenzene			MG/KG		0 / 26	0.0009 - 0.054	1.0E+03	0 / 26	0 / 26
142-28-9	1,3-Dichloropropane			MG/KG		0 / 27	0.0009 - 0.054	2.0E+03	0 / 27	0 / 27
594-20-7	2,2-Dichloropropane			MG/KG		0 / 27	0.0009 - 0.054	4.7E+00	0 / 27	0 / 27
78-93-3	2-Butanone	4.0E-03 J	1.2E-02	MG/KG	S01-SS07	9 / 27	0.004 - 0.22	2.0E+04	0 / 27	0 / 18
95-49-8	2-Chlorotoluene			MG/KG		0 / 26	0.0009 - 0.054	2.0E+03	0 / 26	0 / 26
591-78-6	2-Hexanone	5.0E-03 J	1.7E-02	MG/KG	S01-SS07	2 / 27	0.003 - 0.16	1.4E+02	0 / 27	0 / 25
106-43-4	4-Chlorotoluene			MG/KG		0 / 26	0.0009 - 0.054	2.0E+03	0 / 26	0 / 26
108-10-1	4-Methyl-2-pentanone	5.0E-03 J	5.0E-03 J	MG/KG	S01-SS07	1 / 27	0.003 - 0.16	5.3E+03	0 / 27	0 / 26
67-64-1	Acetone	8.0E-03 J	9.8E-02 J	MG/KG	S01-SS03	24 / 27	0.006 - 0.38	6.3E+04	0 / 27	0 / 3
71-43-2	Benzene	6.0E-04 J	1.6E-01 J	MG/KG	S01-SS02	7 / 27	0.0005 - 0.027	5.4E+00	0 / 27	0 / 20
108-86-1	Bromobenzene	4.0E-03 J	9.6E-02 J	MG/KG	S01-SS02	2 / 26	0.0009 - 0.054	1.8E+02	0 / 26	0 / 24
74-97-5	Bromochloromethane			MG/KG		0 / 27	0.0009 - 0.054	6.8E+01	0 / 27	0 / 27
75-27-4	Bromodichloromethane			MG/KG		0 / 27	0.0009 - 0.054	1.4E+00	0 / 27	0 / 27
75-25-2	Bromoform	1.0E-03 J	1.3E-01 J	MG/KG	S01-SS02	6 / 26	0.0009 - 0.054	2.2E+02	0 / 26	0 / 20
74-83-9	Bromomethane			MG/KG		0 / 27	0.002 - 0.11	3.2E+00	0 / 27	0 / 27
75-15-0	Carbon disulfide	1.0E-03 J	1.4E-02	MG/KG	S01-SS07	5 / 27	0.0009 - 0.054	3.7E+02	0 / 27	0 / 22
56-23-5	Carbon tetrachloride			MG/KG		0 / 27	0.0009 - 0.054	3.0E+00	0 / 27	0 / 27
108-90-7	Chlorobenzene	3.0E-03 J	3.0E-03 J	MG/KG	S01-SS04	1 / 27	0.0009 - 0.054	1.4E+02	0 / 27	0 / 26
75-00-3	Chloroethane			MG/KG		0 / 27	0.002 - 0.11	6.1E+03	0 / 27	0 / 27
67-66-3	Chloroform			MG/KG		0 / 27	0.0009 - 0.054	1.5E+00	0 / 27	0 / 27
74-87-3	Chloromethane			MG/KG		0 / 27	0.002 - 0.11	5.0E+01	0 / 27	0 / 27
156-59-2	cis-1,2-Dichloroethene	1.0E-03 J	6.0E-03	MG/KG	S01-SS01	5 / 27	0.0009 - 0.054	2.0E+02	0 / 27	0 / 22
10061-01-5	cis-1,3-Dichloropropene			MG/KG		0 / 27	0.0009 - 0.054	8.3E+00	0 / 27	0 / 27
110-82-7	Cyclohexane	5.3E-02 J	5.3E-02 J	MG/KG	S01-SS02	1 / 27	0.0009 - 0.054	2.9E+03	0 / 27	0 / 26
124-48-1	Dibromochloromethane			MG/KG		0 / 27	0.0009 - 0.054	3.3E+00	0 / 27	0 / 27
74-95-3	Dibromomethane			MG/KG		0 / 27	0.0009 - 0.054	1.1E+01	0 / 27	0 / 27

TABLE F-1
SWMU-01 Soil: Detection Limit Evaluation
Site Investigation, Dow Hanging Rock, Ironton, Ohio

CAS Number	Analyte	Minimum Detected Concentration	Maximum Detected Concentration	Units	Location of Maximum Detection	Frequency of Detection	Range of Detection Limits	Screening Level	Detected Frequency of Exceedance	Non-Detect Frequency of Exceedance
75-71-8	Dichlorodifluoromethane			MG/KG		0 / 27	0.002 - 0.11	4.0E+01	0 / 27	0 / 27
100-41-4	Ethylbenzene	1.0E-03 J	7.2E-01 J	MG/KG	S01-SS02	5 / 27	0.0009 - 0.054	2.7E+01	0 / 27	0 / 22
76-13-1	Freon 113			MG/KG		0 / 27	0.002 - 0.11	1.8E+04	0 / 27	0 / 27
87-68-3	Hexachlorobutadiene			MG/KG		0 / 26	0.002 - 0.11	2.2E+01	0 / 26	0 / 26
98-82-8	Isopropylbenzene	2.0E-03 J	2.5E-01 J	MG/KG	S01-SS02	3 / 27	0.0009 - 0.054	1.1E+03	0 / 27	0 / 24
179601-23-1	m,p-Xylene	2.0E-03 J	2.0E-03 J	MG/KG	S01-SS07	1 / 27	0.0009 - 0.054	2.5E+02	0 / 27	0 / 26
79-20-9	Methyl acetate	1.5E-01 J	1.5E-01 J	MG/KG	S01-SS02	1 / 27	0.002 - 0.11	1.0E+05	0 / 27	0 / 26
1634-04-4	Methyl tertiary butyl ether			MG/KG		0 / 27	0.0005 - 0.027	2.2E+02	0 / 27	0 / 27
108-87-2	Methylcyclohexane			MG/KG		0 / 27	0.0009 - 0.054	2.6E+02	0 / 27	0 / 27
75-09-2	Methylene chloride			MG/KG		0 / 27	0.002 - 0.11	5.3E+01	0 / 27	0 / 27
91-20-3	Naphthalene	2.0E-03 J	2.0E-03 J	MG/KG	S01-SS07	1 / 26	0.0009 - 0.054	1.8E+01	0 / 26	0 / 25
104-51-8	n-Butylbenzene			MG/KG		0 / 26	0.0009 - 0.054	5.1E+03	0 / 26	0 / 26
103-65-1	n-Propylbenzene	1.0E-01 J	1.0E-01 J	MG/KG	S01-SS02	1 / 26	0.0009 - 0.054	2.1E+03	0 / 26	0 / 25
95-47-6	o-Xylene	4.5E-02 J	4.5E-02 J	MG/KG	S01-SS02	1 / 27	0.0009 - 0.054	3.0E+02	0 / 27	0 / 26
99-87-6	p-Isopropyltoluene			MG/KG		0 / 26	0.0009 - 0.054	1.1E+03	0 / 26	0 / 26
135-98-8	sec-Butylbenzene	2.0E-03 J	6.7E-02 J	MG/KG	S01-SS02	2 / 26	0.0009 - 0.054	1.1E+03	0 / 26	0 / 24
100-42-5	Styrene			MG/KG		0 / 27	0.0009 - 0.054	3.6E+03	0 / 27	0 / 27
98-06-6	tert-Butylbenzene			MG/KG		0 / 26	0.0009 - 0.054	1.1E+03	0 / 26	0 / 26
127-18-4	Tetrachloroethene	1.0E-03 J	1.6E+00 J	MG/KG	S01-SS02	26 / 27	0.0009 - 0.054	2.6E+00	0 / 27	0 / 1
108-88-3	Toluene	2.0E-03 J	6.1E-02 J	MG/KG	S01-SS02	4 / 27	0.0009 - 0.054	4.5E+03	0 / 27	0 / 23
156-60-5	trans-1,2-Dichloroethene	2.0E-03 J	2.0E-03 J	MG/KG	S01-SS01	1 / 27	0.0009 - 0.054	6.9E+01	0 / 27	0 / 26
10061-02-6	trans-1,3-Dichloropropene			MG/KG		0 / 27	0.0009 - 0.054	8.3E+00	0 / 27	0 / 27
79-01-6	Trichloroethene	1.0E-03 J	6.8E-02 J	MG/KG	S01-SS02	9 / 27	0.0009 - 0.054	2.0E+00	0 / 27	0 / 18
75-69-4	Trichlorofluoromethane			MG/KG		0 / 27	0.002 - 0.11	3.4E+02	0 / 27	0 / 27
108-05-4	Vinyl acetate			MG/KG		0 / 27	0.002 - 0.11	4.1E+02	0 / 27	0 / 27
75-01-4	Vinyl chloride			MG/KG		0 / 27	0.0009 - 0.054	1.7E+00	0 / 27	0 / 27
92-52-4	1,1'-Biphenyl	2.5E-02 J	3.8E+00	MG/KG	S01-SS02	7 / 27	0.018 - 0.18	2.1E+01	0 / 27	0 / 20
95-50-1	1,2-Dichlorobenzene	1.0E-03 J	4.0E-03 J	MG/KG	S01-SS08	4 / 26	0.0009 - 0.054	9.8E+02	0 / 26	0 / 22
541-73-1	1,3-Dichlorobenzene			MG/KG		0 / 26	0.0009 - 0.054	1.2E+01	0 / 26	0 / 26
106-46-7	1,4-Dichlorobenzene	2.0E-03 J	2.0E-03 J	MG/KG	S01-SS05	1 / 26	0.0009 - 0.054	1.2E+01	0 / 26	0 / 25
123-91-1	1,4-Dioxane			MG/KG		0 / 27	0.11 - 1.1	1.7E+01	0 / 27	0 / 27
95-95-4	2,4,5-trichlorophenol			MG/KG		0 / 27	0.018 - 0.18	6.2E+03	0 / 27	0 / 27
88-06-2	2,4,6-trichlorophenol			MG/KG		0 / 27	0.018 - 0.18	6.2E+01	0 / 27	0 / 27
120-83-2	2,4-Dichlorophenol			MG/KG		0 / 27	0.018 - 0.18	1.8E+02	0 / 27	0 / 27
105-67-9	2,4-Dimethylphenol	2.5E-02 J	2.5E-02 J	MG/KG	S01-SS09	1 / 27	0.018 - 0.18	1.2E+03	0 / 27	0 / 26
51-28-5	2,4-Dinitrophenol			MG/KG		0 / 27	0.37 - 3.7	1.2E+02	0 / 27	0 / 27
121-14-2	2,4-Dinitrotoluene			MG/KG		0 / 27	0.074 - 0.74	5.5E+00	0 / 27	0 / 27
606-20-2	2,6-Dinitrotoluene			MG/KG		0 / 27	0.018 - 0.18	6.2E+01	0 / 27	0 / 27
91-58-7	2-Chloronaphthalene			MG/KG		0 / 27	0.008 - 0.077	8.2E+03	0 / 27	0 / 27
95-57-8	2-Chlorophenol			MG/KG		0 / 27	0.018 - 0.18	5.1E+02	0 / 27	0 / 27
91-57-6	2-Methylnaphthalene	4.0E-03 J	2.6E-02	MG/KG	S01-SS09	5 / 27	0.004 - 0.037	4.1E+02	0 / 27	0 / 22

TABLE F-1
SWMU-01 Soil: Detection Limit Evaluation
Site Investigation, Dow Hanging Rock, Ironton, Ohio

CAS Number	Analyte	Minimum Detected Concentration	Maximum Detected Concentration	Units	Location of Maximum Detection	Frequency of Detection	Range of Detection Limits	Screening Level	Detected Frequency of Exceedance	Non-Detect Frequency of Exceedance
95-48-7	2-Methylphenol			MG/KG		0 / 27	0.018 - 0.18	3.1E+03	0 / 27	0 / 27
88-74-4	2-Nitroaniline			MG/KG		0 / 27	0.018 - 0.18	6.0E+02	0 / 27	0 / 27
88-75-5	2-Nitrophenol			MG/KG		0 / 27	0.018 - 0.18	5.1E+02	0 / 27	0 / 27
91-94-1	3,3'-Dichlorobenzidine			MG/KG		0 / 27	0.11 - 1.1	3.8E+00	0 / 27	0 / 27
99-09-2	3-Nitroaniline	1.0E-01 J	1.0E-01 J	MG/KG	S01-SS02	1 / 27	0.074 - 0.74	6.0E+02	0 / 27	0 / 26
534-52-1	4,6-Dinitro-2-methylphenol			MG/KG		0 / 27	0.18 - 1.8	4.9E+00	0 / 27	0 / 27
101-55-3	4-Bromophenyl-phenylether			MG/KG		0 / 27	0.018 - 0.18	2.2E+01	0 / 27	0 / 27
59-50-7	4-Chloro-3-methylphenol			MG/KG		0 / 27	0.018 - 0.18	6.2E+03	0 / 27	0 / 27
106-47-8	4-Chloroaniline			MG/KG		0 / 27	0.018 - 0.18	8.6E+00	0 / 27	0 / 27
7005-72-3	4-Chlorophenyl-phenylether			MG/KG		0 / 27	0.018 - 0.18	2.2E+01	0 / 27	0 / 27
106-44-5	4-Methylphenol	6.3E-02	6.3E-02	MG/KG	S01-SS09	1 / 27	0.018 - 0.18	3.1E+02	0 / 27	0 / 26
100-01-6	4-Nitroaniline			MG/KG		0 / 27	0.074 - 0.74	8.6E+01	0 / 27	0 / 27
100-02-7	4-Nitrophenol			MG/KG		0 / 27	0.18 - 1.8	2.4E+01	0 / 27	0 / 27
83-32-9	Acenaphthene	7.0E-03 J	6.4E-02 J	MG/KG	S01-SS01	4 / 27	0.004 - 0.037	3.3E+03	0 / 27	0 / 23
208-96-8	Acenaphthylene	4.0E-03 J	1.1E+00	MG/KG	S01-SS09	5 / 27	0.004 - 0.037	3.3E+03	0 / 27	0 / 22
120-12-7	Anthracene	1.9E-02 J	1.2E+00	MG/KG	S01-SS09	5 / 27	0.004 - 0.037	1.7E+04	0 / 27	0 / 22
56-55-3	Benzo(a)anthracene	1.0E-02 J	3.7E+00	MG/KG	S01-SS09	8 / 27	0.004 - 0.037	2.1E+00	1 / 27	0 / 19
50-32-8	Benzo(a)pyrene	1.0E-02 J	3.8E+00	MG/KG	S01-SS09	8 / 27	0.004 - 0.037	2.1E-01	3 / 27	0 / 19
205-99-2	Benzo(b)fluoranthene	5.0E-03 J	5.8E+00	MG/KG	S01-SS09	9 / 27	0.004 - 0.037	2.1E+00	1 / 27	0 / 18
191-24-2	Benzo(g,h,i)perylene	6.0E-03 J	3.0E+00	MG/KG	S01-SS09	9 / 27	0.004 - 0.037	1.7E+03	0 / 27	0 / 18
207-08-9	Benzo(k)fluoranthene	7.0E-03 J	1.8E+00	MG/KG	S01-SS09	8 / 27	0.004 - 0.037	2.1E+01	0 / 27	0 / 19
100-51-6	Benzyl alcohol			MG/KG		0 / 27	0.18 - 1.8	6.2E+03	0 / 27	0 / 27
111-91-1	Bis(2-chloroethoxy)methane			MG/KG		0 / 27	0.018 - 0.18	1.8E+02	0 / 27	0 / 27
111-44-4	Bis(2-chloroethyl)ether			MG/KG		0 / 27	0.018 - 0.18	1.0E+00	0 / 27	0 / 27
117-81-7	Bis(2-ethylhexyl)phthalate			MG/KG		0 / 27	0.074 - 0.74	1.2E+02	0 / 27	0 / 27
85-68-7	Butylbenzylphthalate			MG/KG		0 / 27	0.074 - 0.74	9.1E+02	0 / 27	0 / 27
86-74-8	Carbazole	1.2E-01	1.3E-01 J	MG/KG	S01-SS01	2 / 27	0.018 - 0.18	NA	NA	NA
218-01-9	Chrysene	5.0E-03 J	3.5E+00	MG/KG	S01-SS09	9 / 27	0.004 - 0.037	2.1E+02	0 / 27	0 / 18
53-70-3	Dibenz(a,h)anthracene	9.0E-03 J	8.9E-01	MG/KG	S01-SS09	4 / 27	0.004 - 0.037	2.1E-01	1 / 27	0 / 23
132-64-9	Dibenzofuran	5.1E-02	5.1E-02	MG/KG	S01-SS09	1 / 27	0.018 - 0.18	1.0E+02	0 / 27	0 / 26
84-66-2	Diethylphthalate			MG/KG		0 / 27	0.074 - 0.74	4.9E+04	0 / 27	0 / 27
131-11-3	Dimethylphthalate			MG/KG		0 / 27	0.074 - 0.74	4.9E+04	0 / 27	0 / 27
84-74-2	Di-n-butylphthalate			MG/KG		0 / 27	0.074 - 0.74	6.2E+03	0 / 27	0 / 27
117-84-0	Di-n-octylphthalate			MG/KG		0 / 27	0.074 - 0.74	4.9E+04	0 / 27	0 / 27
206-44-0	Fluoranthene	8.0E-03 J	5.6E+00	MG/KG	S01-SS09	9 / 27	0.004 - 0.037	2.2E+03	0 / 27	0 / 18
86-73-7	Fluorene	7.0E-03 J	1.0E-01	MG/KG	S01-SS09	4 / 27	0.004 - 0.037	2.2E+03	0 / 27	0 / 23
118-74-1	Hexachlorobenzene			MG/KG		0 / 27	0.004 - 0.037	1.1E+00	0 / 27	0 / 27
77-47-4	Hexachlorocyclopentadiene			MG/KG		0 / 27	0.18 - 1.8	3.7E+02	0 / 27	0 / 27
67-72-1	Hexachloroethane			MG/KG		0 / 27	0.037 - 0.37	4.3E+01	0 / 27	0 / 27
193-39-5	Indeno(1,2,3-cd)pyrene	9.0E-03 J	2.7E+00	MG/KG	S01-SS09	8 / 27	0.004 - 0.037	2.1E+00	1 / 27	0 / 19
78-59-1	Isophorone			MG/KG		0 / 27	0.018 - 0.18	1.8E+03	0 / 27	0 / 27

TABLE F-1
SWMU-01 Soil: Detection Limit Evaluation
Site Investigation, Dow Hanging Rock, Ironton, Ohio

CAS Number	Analyte	Minimum Detected Concentration	Maximum Detected Concentration	Units	Location of Maximum Detection	Frequency of Detection	Range of Detection Limits	Screening Level	Detected Frequency of Exceedance	Non-Detect Frequency of Exceedance
98-95-3	Nitrobenzene			MG/KG		0 / 27	0.018 - 0.18	2.4E+01	0 / 27	0 / 27
621-64-7	n-Nitroso-di-n-propylamine			MG/KG		0 / 27	0.018 - 0.18	2.5E-01	0 / 27	0 / 27
86-30-6	n-Nitrosodiphenylamine			MG/KG		0 / 27	0.018 - 0.18	3.5E+02	0 / 27	0 / 27
87-86-5	Pentachlorophenol			MG/KG		0 / 27	0.037 - 0.37	2.7E+00	0 / 27	0 / 27
85-01-8	Phenanthrene	8.0E-03 J	1.0E+00	MG/KG	S01-SS09	11 / 27	0.004 - 0.037	1.7E+04	0 / 27	0 / 16
108-95-2	Phenol	2.3E-02 J	4.3E-02	MG/KG	S01-SS09	3 / 27	0.018 - 0.18	1.8E+04	0 / 27	0 / 24
129-00-0	Pyrene	9.0E-03 J	4.4E+00	MG/KG	S01-SS09	10 / 27	0.004 - 0.037	1.7E+03	0 / 27	0 / 17
7440-38-2	Arsenic	6.6E+00	1.7E+01	MG/KG	S01-SS09	27 / 27	0.0868 - 0.0986	1.6E+00	27 / 27	0 / 0
7440-39-3	Barium	3.9E+01	8.6E+02	MG/KG	S01-SS09	27 / 27	0.0201 - 0.0996	1.9E+04	0 / 27	0 / 0
7440-43-9	Cadmium	4.2E-02 J	1.4E+00	MG/KG	S01-SS01	27 / 27	0.0213 - 0.025	8.0E+01	0 / 27	0 / 0
7440-47-3	Chromium	1.1E+01	4.4E+01	MG/KG	S01-SS09	27 / 27	0.149 - 0.175	1.5E+05	0 / 27	0 / 0
7439-92-1	Lead	5.6E+00	7.4E+01	MG/KG	S01-SS06	27 / 27	0.234 - 1.18	8.0E+01	0 / 27	0 / 0
7439-97-6	Mercury	9.8E-03 J	4.8E-02 J	MG/KG	S01-SS06	26 / 27	0.0073 - 0.0086	3.1E+00	0 / 27	0 / 1
7782-49-2	Selenium	1.3E+00 J	1.5E+01	MG/KG	S01-SS09	4 / 27	0.723 - 0.849	5.1E+02	0 / 27	0 / 23
7440-22-4	Silver	2.6E-01 J	2.6E-01 J	MG/KG	S01-SS09	1 / 27	0.0883 - 0.104	5.1E+02	0 / 27	0 / 26

Notes:

J = Estimated Value

Screening Level = USEPA Industrial Regional Screening Level (RSL) based on $1x10^{-6}$ or HQ = 0.1 (November 2011).

FOE = Frequency of Exceedance

NA = Not applicable/not available